

Final Staff Assessment
(Part 2)

CALIFORNIA
ENERGY
COMMISSION

MOSS LANDING POWER PLANT PROJECT

Application For Certification (99-AFC-4)
Moss Landing - Monterey County

STAFF REPORT

JUNE 2000
(99-AFC-4)



Gray Davis, Governor

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CALIFORNIA ENERGY COMMISSION

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EXECUTIVE SUMMARY

On May 7, 1999, Duke Energy Moss Landing LLC filed an Application for Certification (AFC) seeking approval from the California Energy Commission (Energy Commission) to construct and operate the proposed Moss Landing Power Plant Project (MLPPP). The AFC was determined to be data adequate by the Energy Commission at the August 11, 1999 business meeting. This finding began staff's review and analysis of the project.

On May 15, 2000 staff filed Part 1 of its Final Staff Assessment (FSA). Part 1 included staff analysis of 17 technical areas¹. Five technical areas, **Air Quality, Land Use, Soil and Water Resources, Biological Resources, and Alternatives** were not filed in Part 1 of the FSA. This Part 2 of the FSA includes staff's **Air Quality** and **Land Use** analysis. Staff's air quality analysis incorporates requirements specified in the Monterey Bay Unified Air Pollution Control District's Final Determination of Compliance. If staff's proposed conditions of certification for air quality and land use are adopted by the Energy Commission, staff concludes that the proposed project will comply with applicable regulations and will not result in any significant impacts to air quality or land use.

Part 2 also includes errata for **Cultural Resources, Public Health, Hazardous Material Management, Waste Management, Socioeconomics and Visual Resources**. Staff is also adding Dorothy Torres as a witness for **Cultural Resources**. Her resume and declaration are included.

Staff will file Part 3 of the FSA, which will include **Soil & Water Resources, Biological Resources and Alternatives**, on June 6, 2000. The following provides a brief summary of the project.

PROJECT SUMMARY

The existing Moss Landing Power Plant is an extensive industrial complex of 7 electric generation units, 8 225-foot exhaust stacks, 19 fuel storage tanks, 2 seawater inlet and out fall structures, various warehouse and office buildings, and other related equipment on a 239-acre site. The power plant has been generating electricity since 1950. Units 1-5 (613 MWs), originally built in the 1950's were shut down in 1995. Units 6 and 7 (1,500 MWs) are currently in operation. On July 1, 1998, Duke Energy purchased the 239-acre site from PG&E. PG&E retained the adjacent 500/230/115-kV substation.

The project is proposed to be located at the existing Moss Landing Power Plant site. This site is located about 12 miles northwest of Salinas, California in Monterey

¹ Need Conformance, Waste Management, Public Health, Geology and Paleontology, Hazardous Materials Handling, Facility Design, Transmission Line Safety & Nuisance, Reliability, Traffic and Transportation, Efficiency, Noise, Transmission System Engineering, Cultural Resources, Worker Safety and Fire Protection, Visual Resources, General Conditions/Compliance, and Socioeconomics.

County at the intersection of Highway 1 and Dolan Road, east of the community of Moss Landing. The plant is situated near the Moss Landing Harbor in an area that includes industrial facilities, agricultural lands, residences, recreational beaches and tidal wetlands.

The Moss Landing Power Plant Project consists of replacing the existing electric power generation Units 1-5 with two 530 MW, natural gas-fired, combined cycle, units. Each combined cycle unit consists of two natural gas fired combustion turbine generators (CTGs), two unfired heat recovery steam generators (HRSGs) and a reheat, condensing steam turbine generator (STG). Each combined cycle unit will use seawater for once through cooling. In addition, they plan to dismantle 8 of the existing 225-foot stacks that were previously used for Units 1-5.

There are no linear facilities outside the property owned by Duke Energy and the adjacent PG&E substation. The natural gas pipeline connection, interconnection to the PG&E substation, and ocean water intake are all contained on these two adjacent properties.

In addition, Duke will be removing the large fuel storage tanks on site and adding Selective Catalytic Reduction (SCR; an air emission control technology) to existing Units 6 and 7. Monterey County is the lead agency for the environmental review of these projects, but the analysis in this document includes a discussion and analysis of any potential cumulative impacts from these projects.

If the project were to be approved by the Energy Commission, construction is expected to begin immediately after the decision and will take about 29 months. Full-scale commercial operation is expected by mid 2002. Duke Energy expects a peak work force of approximately 732 craft laborers, supervisory, support and construction management personnel on the site during construction. The capital cost of the project is estimated to be about \$475 million.

ENERGY COMMISSION JURISDICTION

The Moss Landing Power Plant Project and related facilities are under the Energy Commission's jurisdiction (Pub. Resources Code (PRC) §§ 25500 et seq.). When issuing a license, the Energy Commission acts as lead state agency (PRC § 25519(c)) under the California Environmental Quality Act (PRC §§ 21000 et seq.), and its process is functionally equivalent to the preparation of an environmental impact report (PRC § 21080.5).

Staff's primary responsibility is to provide an independent assessment of the project's potentially significant effects on the environment, the public's health and safety, conformance with all applicable laws, ordinances, regulations and standards (LORS), and measures to mitigate any identified potential effects. The analyses contained in this document were prepared in accordance with PRC Sections 25500 et seq.; the California Code of Regulations (CCR) Title 20, Sections 1201 et seq.; and the California Environmental Quality Act (PRC §§ 21000 et seq.) and its guidelines (CCR title 14 §§ 15000 et seq.).

The Final Staff Assessment (FSA) presents Energy Commission staff's conclusions and recommended conditions of certification for the design, construction, operation and closure of the facility. The analyses contained in this document are based upon information from the AFC and subsequent revisions; responses to data requests; supplemental information from local, state and federal agencies, local citizens and interested parties; existing documents and publications; independent field study; and information gained from two days of publicly noticed workshops on the Preliminary Staff Assessment.

Each technical area section of the FSA contains a discussion of impacts, mitigation measures and conditions of certification. The FSA includes staff's assessments of:

- the environmental setting of the proposal;
- environmental impacts, and measures proposed to mitigate these impacts;
- impacts on public health and safety. the engineering design of the proposed facility, and measures proposed to ensure the project can be constructed and operated safely and reliably;
- compliance of the project with all applicable laws, ordinances, regulations and standards (LORS) during construction and operation;
- proposed conditions of certification;
- project closure; and
- project alternatives.

STAFF RECOMMENDATION

Since staff has not completed its analyses for soil & water resources, biological resources, and alternatives, we believe it is premature to tender any recommendations on the Moss Landing Power Plant Project. However, staff believes that issues in these topic areas can be resolved.

MOSS LANDING POWER PLANT PROJECT (99-AFC-4)
FINAL STAFF ASSESSMENT PART 2

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CULTURAL RESOURCES ERRATA

Testimony of Deborah K. B. McLean and Dorothy Torres

The following changes should be made to Cultural Resources Condition 2, 10, 12 and 14 on FSA Part 1 page 207, 211-212, 212-213, and 213-214, respectively.

~~**CUL-2**—Prior to the start of earth-disturbing activities, the project owner shall provide the designated cultural resources specialist and the CPM with maps and drawings issued for the construction site plan and site layout and for the final alignment of any linear facilities. Maps provided will include the USGS *Moss Landing* 7.5 minute topographic quadrangle map and a map at an appropriate scale (i.e., 1:2000 or 1" = 200') for plotting individual artifacts. Maps shall show the following:~~

~~The location of all areas where surface disturbance may be associated with project related access roads, and any other project components.~~

~~Verification: At least seventy five (75) days prior to the start of earth-disturbing activities on the project, the project owner shall provide the designated cultural resources specialist and the CPM with final drawings and site layouts for all project facilities and for all areas potentially affected by project earth-disturbing activities or project construction, on the USGS *Moss Landing* 7.5 minute topographic quadrangle map and on a map at a scale of 1:2000 or 1" = 200'. If the designated cultural resources specialist requests enlargements or strip maps for linear facility routes, the project owner shall provide them.~~

Cul-2 Prior to the start of earth disturbing activities, the project owner shall provide the designated cultural resources specialist and the CPM with maps and drawings showing the footprint of the power plant and all linear facilities. Maps provided will include the USGS *Moss Landing* 7.5 minute topographic quadrangle map and a map at an appropriate scale (e.g., 1:2000 or 1" = 200') for plotting individual artifacts. If the designated cultural resource specialist requests enlargements or strip maps for linear facility routes, the project owner shall provide them. In addition, the project owner shall provide a set of these maps to the CPM at the same time that they are provided to the specialist. If the footprint of the power plant or linear facilities changes, the project owner shall provide maps and drawings reflecting these changes, to the cultural resources specialist and the CPM within five days. Maps shall show the location of all areas where surface disturbance may be associated with project related access roads, and any other project components.

Verification: At least seventy-five (75) days prior to the start of earth disturbing activities on the project, the project owner shall provide the designated cultural resources specialist and the CPM with the maps and drawings. Copies of maps or drawings reflecting changes to the footprint of the power plant and/or linear facilities shall be submitted to the cultural resources specialist and the CPM within five days of the changes.

Cul-10 The project owner, through the designated cultural resource specialist, shall employ a qualified Native American monitor or monitors to observe project related ground disturbing activities.

Protocol: Prior to project-related earth disturbing activities, the project owner and the designated cultural resource specialist shall identify Native American monitor(s) with direct and specific knowledge and traditional Native American ties to the Moss Landing Area. The project owner and cultural resource specialist shall develop an agreement(s) for a qualified Native American monitor or monitors [as suggested in guidelines provided by the Native American Heritage Commission (NAHC)]. The Native American monitor(s) shall report to the designated cultural resources specialist and shall be regarded as a member of the cultural resource monitoring team. The Native American monitor(s) shall be present during any project-related earth disturbing activities.

Verification: At least ~~sixty (60)~~ thirty (30) days prior to earth disturbing activities, the project owner shall provide the CPM with a copy of all finalized agreements for Native American monitors. If efforts to obtain the services of a qualified Native American monitor(s) prove unsuccessful, the project owner shall immediately inform the CPM who will initiate a resolution process.

CUL-12 Following completion of data recovery and site mitigation work, the project owner shall ensure that the designated cultural resources specialist prepares a proposed scope of work for the Cultural Resources Report. The project owner shall submit the proposed scope of work to the CPM for review and written approval.

Protocol: The proposed scope of work shall include (but not be limited to):

1. A discussion of any analysis to be conducted on recovered cultural resources materials;
2. A discussion of possible results and findings;
3. Proposed research questions that may be answered or raised by analysis of the data recovered from the project; and
4. An estimate of the time needed to complete the analysis of recovered cultural resources materials and prepare the Cultural Resources Report.

The project owner shall ensure that the Cultural Resources Report that is prepared by the designated cultural resources specialist at the conclusion of the project, follows the format provided by the California Office of Historic Preservation.

Verification: The proposed scope of work shall be completed within ~~ninety (90)~~ one hundred and twenty (120) days following completion of the data recovery and site mitigation work. Within ~~seven (7)~~ fourteen (14) days after completion of the proposed scope of work, the project owner shall submit it to the CPM for review and written approval.

Cul-14 The project owner shall ensure that the designated cultural resources specialist prepares a Cultural Resources Report. The project owner shall submit the report to the CPM for review and written approval.

Protocol: The Cultural Resources Report shall include (but not be limited to) the following:

1. For all projects:
 - a. A description of pre-project literature search, surveys, and any testing activities;
 - b. Maps showing areas surveyed or tested;
 - c. A description of any monitoring activities;
 - d. Maps of any areas monitored; and
 - e. Conclusions and recommendations.
2. For projects in which cultural resources were encountered, include the items specified above and also provide:
 - f. site and isolate records and maps;
 - g. a description of testing for, and determinations of, significance and potential eligibility; and
 - h. a discussion of the research questions answered or raised by the data from the project.
3. For projects regarding which cultural resources were recovered, include the items specified above and also provide:
 - i. A description of pre-project literature search, surveys, and any testing activities;
 - j. Results and findings of any special analyses conducted on recovered cultural resources materials;
 - k. An inventory list of recovered cultural resources materials; and
 - l. The name and location of the public repository receiving the recovered cultural resources for curation.

Verification: The project owner shall ensure that the designated cultural resources specialist completes the Cultural Resources Report within ~~ninety (90) one~~ hundred and twenty (120) days following completion of cultural resources activities on behalf of the project or the analysis of the recovered cultural materials. Within ~~seven (7)~~ fourteen (14) days after completion of the report, the project owner shall submit the Cultural Resources Report to the CPM for review and written approval.

Dorothy E. Torres

EXPERIENCE:

December 1998-
Present

Energy Analyst: Community and Cultural Resources Unit, Energy Facilities Siting and Environmental Protection Division, California Energy Commission. Duties: I assist in gathering, organizing and analyzing cultural resources data and identify issues, impacts and mitigation measures. I assist in coordinating with local governments, resource protection agencies, environmental organizations and business organizations. Furthermore, I participate in workshops and meetings concerning Commission projects and programs. I evaluate existing and proposed laws, ordinances, regulations, standards, and policies pertinent to the cultural resource aspect of proposed energy facilities. I prepare written assessments of energy related documents.

EDUCATION:

Spring 1988

M.A., Anthropology
California State University, Sacramento

Spring 1980

B.A., Anthropology and History
California State University, Sacramento

Professional
Organization

Society for California Archaeology

INSERT DOROTHY TORRES'S DECLARATION HERE

HAZARDOUS MATERIAL MANAGEMENT ERRATA

Testimony of Rick Tyler

The following discussion should be added on FSA Part 1 page 59, before the paragraph entitled "Facility Closure".

RESPONSE TO COMMENTS

On April 14, 2000, staff received comments from the California Department of Fish and Game (CDFG) on the Preliminary Staff Assessment. CDFG's comments on hazardous material management read as follows:

"Page 5. The Assessment should include the effects to people on the north side of the plant taking recreational limits of shellfish and/or fish or enjoying viewing opportunities of marine mammals.

Page 13, Table 6.15-3. The Assessment does not describe the chlorine storage facilities which currently contain chlorine used to minimize biological fouling in the cleaning of the intake structure."

Staff's hazardous material management assessment address the consequence accidental release of hazardous materials to all members of the public, including those identified by CDFG. The only hazardous material associated with the proposed project, capable of causing off-site impact is aqueous ammonia. With the proposed mitigation, all significant exposure is confined to the facility property and would not affect any one fishing or viewing on the Elkhorn slough.

Table 6.15-3 was inadvertently left out of the May 15, 2000 FSA Part 1. Please find this table attached. The proposed project will use calcium hypochlorite to control biological growth. Calcium hypochlorite has a very low vapor pressure and would not result in any off-site impacts in the event of a spill. The existing facilities use sodium hypochlorite and have not used anhydrous chlorine for many years. Sodium hypochlorite poses no risk of offsite consequence as it has virtually no vapor and would not migrate of site as a result of an accidental release.

[Insert here **Table** 6.15-3 from the AFC (Duke Energy, 1999a)]

WASTE MANAGEMENT ERRATA

Testimony of Michael Ringer

The following changes should be made to waste management conditions 1 and 4 on FSA Part 1 pages 78 and 79.

WASTE-2 Prior to the start of both construction and operation, the project owner shall prepare and submit to the CEC CPM, for review and comment, a waste management plan for all wastes generated during construction and operation of the facility, respectively. The plans shall contain, at a minimum, the following:

- A description of all expected waste streams, including projections of frequency and hazard classifications; and
- Methods of managing each waste, including treatment methods and companies contracted with for treatment services, waste testing methods to assure correct classification, methods of transportation, disposal requirements and sites, and recycling and waste minimization/reduction plans.

Verification: No less than ~~30~~ 60 days prior to the start of construction, the project owner shall submit the construction waste management plan to the CPM for review. The operation waste management plan shall be submitted no less than 60 days prior to the start of project operation. The project owner shall submit any required revisions within ~~15~~ 30 days of notification by the CPM (or mutually agreed upon date). In the Annual Compliance Reports, the project owner shall document the actual waste management methods used during the year compared to planned management methods.

WASTE-4 Silt or related dredge material removed during work or maintenance on the cooling water intake system shall be tested and disposed of in an inland disposal facility approved by the California Department of Toxic Substances Control or the local Regional Water Quality Control Board. Similar work performed by the Moss Landing Harbor District for Duke Energy shall comply with the District's permit.

Verification: The project owner shall notify the CPM via the Annual Compliance Report of the disposition of any silt or dredge material removed.

PUBLIC HEALTH ERRATA

Testimony of Obed Odoemelum

The following discussion should be added on FSA Part 1 page 25, before the paragraph entitled "Project Closure".

RESPONSE TO COMMENTS

On April 14, 2000, staff received comments from the California Department of Fish and Game (CDFG) on the Preliminary Staff Assessment. CDFG's comments on public health read as follows:

"Page 3. The Assessment describes locations of people potentially susceptible to environmental pollutants. However, this section does not describe the effects to recreational harvesters of shellfish from the mudflats immediately north of the plant, persons who fish from land on both sides of the Highway 1 bridge, and those people who fish in the slough adjacent to the Units 1-5 discharge structure."

Because of the nature of the pollutants from the proposed facility and their expected rates of emission into the environment, staff considered only direct inhalation as the only route of potential health significance in the project's impact area. The direct inhalation impacts to the receptors, including those identified by CDFG, were considered in staff's analysis. CDFG's concern may be related to the potential for these project-related pollutants to accumulate to significant levels in fish and shellfish as they are transported up the food chain. Staff does not consider such significant accumulation to be likely with respect to the types of emissions in question and does not consider the ingestion pathway (whether related to shellfish or any other edible species in the mudflats) as potentially significant with regard to this facility. Therefore, staff's finding of insignificance with respects to the inhalation exposure is also true for the ingestion pathway of specific concern to Fish and Game.

SOCIOECONOMICS ERRATA

Testimony of Amanda Stennick

The following changes should be made to Socioeconomic condition 1 on FSA Part 1 page 227.

PROPOSED CONDITIONS OF CERTIFICATION

SOCIO-1 The project owner and its contractors and subcontractors shall recruit employees and procure materials and supplies within Monterey, Santa Cruz, and San Benito Counties first unless:

- to do so will violate federal and/or state statutes;
- the materials and/or supplies are not available; or
- qualified employees for specific jobs or positions are not available; or
- there is a reasonable basis to hire someone for a specific position from outside the local area; or
- to do so would violate union agreements.

Verification: At least 60 days prior to the start of construction or at a lesser time mutually agreed to by the project owner and the CPM, the project owner shall submit to the Energy Commission Compliance Project Manager (CPM) copies of contractor, subcontractor, and vendor solicitations and guidelines stating hiring and procurement requirements and procedures. In addition, the project owner shall notify the CPM in each Monthly Compliance Report of the reasons for any planned procurement of materials or hiring outside the local regional area that will occur during the next two months. The CPM shall review and comment on the submittal as needed.

VISUAL RESOURCES ERRATA

Testimony of David Flores

The following discussion should be added on FSA Part 1 page 152, before the paragraph entitled “Facility Closure”.

RESPONSE TO COMMENTS

On April 14, 2000, staff received comments from the California Department of Fish and Game (CDFG) on the Preliminary Staff Assessment (PSA). CDFG had two comments on visual resources. Staff concurs with CDFG's first comment and recommends that the fourth paragraph on page 126 be modified as follows:

The Elkhorn Slough National Estuarine Research Reserve (Reserve) is located ~~four~~ 1 ½ miles east of the MLPP and is co-managed by the California Department of Fish and Game in cooperation with the National Oceanic and Atmospheric Administration. The 1,400-acre reserve has miles of trails, an interpretative center, and channels for canoeing and float boats for bird and wildlife viewing excursions.

CDFG also commented that the PSA “does not reflect that the plume is visible above the fog to the residences living in the hilly portions of the surrounding cities.” Since staff issued the PSA, staff has revised its analysis and now concludes that a visible plume will not form as a result of the project's operation.

The following changes should be made to visual resources conditions 1, 2 and 3 on FSA Part 1 pages 154 through 156.

VIS-1 Prior to the start of commercial operation, the project owner shall treat the project structures visible to the public in a non-reflective color to blend with the surrounding environment. The project owner shall treat the exhaust towers with a heat-resistant color that minimizes contrast and harmonizes with the surrounding environment.

Protocol: The project owner shall submit a treatment plan for the project to Monterey County for review and comment and to the California Energy Commission Compliance Project Manager (CPM) for final review and approval. The treatment plan shall include:

- specification, and 11” x 17” color simulations, of the treatment proposed for use on project structures, including structures treated during manufacture;
- a ~~detailed~~ milestone schedule for completion of the treatment; and,
- a procedure to ensure proper treatment maintenance for the life of the project.

If the CPM notifies the project owner that revisions of the plan are needed before the CPM will approve the plan, the project owner shall submit to the CPM a revised plan.

After approval of the plan by the CPM, the project owner shall implement the plan according to the schedule and shall ensure that the treatment is properly maintained for the life of the project.

The project owner should not specify the treatment of structures to the vendors until the project owner receives notification of approval of the treatment plan by the CPM.

The project owner shall not perform the final treatment on any structures until the project owner receives notification of approval of the treatment plan from the CPM.

The project owner shall notify the CPM within one week after all precolored structures has been erected and all structures to be treated in the field have been treated and the structures are ready for inspection.

Verification: Not later than 30-90 days prior to ~~ordering the first structures that are color treated during manufacture~~ any field coating of structures, the project owner shall submit its proposed plan to the CPM for review and approval. This submittal shall include verification that Monterey County has agreed to the color scheme. If the CPM notifies the project owner that any revisions of the plan are needed before the CPM will approve the plan, within 30 days of receiving that notification, the project owner shall submit to the CPM a revised plan.

Not less than thirty (30) days prior to the start of commercial operation, the project owner shall notify the CPM that all structures treated during manufacture and all new structures treated in the field are ready for inspection.

The project owner shall provide a status report regarding treatment maintenance in the Annual Compliance Report.

VIS-2 The Energy Commission recognizes that fencing will be used for a variety of purposes on the Moss Landing site. The perimeter fence will be planted with vines according to the landscape plan (VIS-4). Internal fences required for animal control will be designed specifically for that purpose. Some internal safety fencing will be left open for surveillance purposes. Fencing used for screening shall be non-reflective and shall have slats to provide sufficient screening. ~~Prior to ordering the fencing, the project owner shall submit to the CPM for review and approval the specifications for the fencing documenting the characteristics of all fencing types.~~ Prior to installing any permanent fence the project owner shall notify the CPM, and provide the specifications for review and approval. This submittal shall include verification that Monterey County has agreed to fencing specifications.

~~The project owner shall not order the fencing until the project owner receives approval of the fencing submittal from the CPM.~~

Verification: At least ~~30-90~~ days ~~prior to ordering the~~ before the installation of any permanent fencing, the project owner shall submit the specifications to the CPM for review and approval. This submittal shall include verification that Monterey County has agreed to fencing specifications.

If the CPM notifies the project owner that revisions of the submittal are needed before the CPM will approve the submittal, within 15 days of receiving that notification, the project owner shall prepare and submit to the CPM a revised submittal.

The project owner shall notify the CPM within seven days after completing installation of the fencing that the fencing is ready for inspection.

VIS-3 Prior to the start of commercial operation, the project owner shall design and install, for the proposed power plant, lighting such that light bulbs and reflectors are not visible from public viewing areas and illumination of the vicinity and the nighttime sky is minimized. To meet these requirements:

Protocol: The project owner shall develop and submit a lighting plan for the project to the CPM for review and approval. The lighting plan shall require that:

- Lighting is designed so that exterior light fixtures are hooded, with lights directed downward or toward the area to be illuminated and so that backscatter to the nighttime sky is minimized. The design of this outdoor lighting shall be such that the luminescence or light source is shielded to prevent light trespass outside the project boundary;
- High illumination areas not occupied on a continuous basis such as maintenance platforms or the main entrance are provided with switches or motion detectors to light the area only when occupied; and
- A lighting complaint resolution form (following the general format of that in attachment 1) will be used by plant operations to record all lighting complaints received and document the resolution of those complaints. All records of lighting complaints shall be kept in the on-site compliance file.
- Lighting shall not be installed before the plan is approved. The project owner shall notify the CPM when the lighting has been installed and is ready for inspection.

Verification: At least 90 days ~~prior to start of construction~~ before installation of any permanent lighting, the project owner shall provide the lighting plan to the CPM for review and approval. The CPM will notify the project owner of approval or disapproval within 15 days of receipt of the lighting plan.

The project owner shall notify the CPM within seven days of completing exterior lighting installation that the lighting is ready for inspection.

AIR QUALITY

Matt Layton

INTRODUCTION

This analysis evaluates the expected air quality impacts of the emissions of criteria air pollutants due to the construction and operation of the proposed combined cycle units at the Moss Landing Power Plant (MLPP). Criteria air pollutants are defined as those for which a state or federal ambient air quality standard has been established to protect public health. They include nitrogen dioxide (NO₂), sulfur dioxide (SO₂), carbon monoxide (CO), ozone (O₃), volatile organic compounds (VOC) and particulate matter less than 10 microns in diameter (PM₁₀).

In carrying out this analysis, the California Energy Commission staff evaluated the following major points:

- whether the combined cycle units at the Moss Landing Power Plant are likely to conform with applicable Federal, State and Monterey Bay Unified Air Pollution Control District air quality laws, ordinances, regulations and standards, as required by Title 20, California Code of Regulations, section 1742.5 (b),
- whether the combined cycle units at the Moss Landing Power Plant are likely to cause significant air quality impacts, including new violations of ambient air quality standards or contributions to existing violations of those standards, as required by Title 20, California Code of Regulations, section 1742 (b), and
- whether the mitigation proposed for the combined cycle units at the Moss Landing Power Plant are adequate to lessen the potential impacts to a level of insignificance, as required by Title 20, California Code of Regulations, section 1744 (b).

LAWS, ORDINANCES, REGULATIONS AND STANDARDS (LORS)

FEDERAL

Under the Federal Clean Air Act (40 CFR 52.21), there are two major components of air pollution law, New Source Review (NSR) and Prevention of Significant Deterioration (PSD). NSR is a regulatory process for evaluation of those pollutants that violate federal ambient air quality standards. Conversely, PSD is a regulatory process for evaluation of those pollutants that do not violate federal ambient air quality standards. The NSR and PSD analyses has been delegated by the Environmental Protection Agency (EPA) to the Monterey Bay Unified Air Pollution Control District (District). Additionally, the District's NSR program has been designated equivalent to PSD. The NSR permit will serve as the PSD permit. The PSD requirements apply only to those projects (known as major sources) that exceed 100 tons per year for any pollutant.

STATE

The California State Health and Safety Code, section 41700, requires that “no person shall discharge from any source whatsoever such quantities of air contaminants or other material which cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public, or which endanger the comfort, repose, health, or safety of any such persons or the public, or which cause, or have a natural tendency to cause, injury or damage to business or property.”

LOCAL

The proposed project is subject to the Monterey Bay Unified Air Pollution Control District (District) rules and regulations. The rules and regulations are discussed in the Preliminary Determination of Compliance (PDOC) issued January 7, 2000 (District 2000a). Rules that apply to the MLPP are summarized here for convenience.

DISTRICT RULE NO. 200—PERMITS REQUIRED

New emission sources shall obtain a separate written authority to construct for each permit unit from the Air Pollution Control Officer. An authority to construct shall remain in effect until the permit to operate the equipment for which the application was filed is granted or denied or the application is cancelled. Duke Energy Moss Landing LLC has applied for and will be issued Authorities to Construct (ATCs) for the installation and temporary operation of this equipment. Upon completion of initial compliance testing, Permits to Operate (PTOs) will be issued.

DISTRICT RULE NO. 203—APPLICATION

Duke Energy Moss Landing LLC supplied separate applications for each permit unit and utilized the District’s permit application forms as required by this Rule.

DISTRICT RULE NO. 205—PROVISION OF SAMPLING AND TESTING FACILITIES

The permits will include conditions establishing sampling facilities as required by this Rule.

DISTRICT RULE NO. 206—STANDARDS FOR GRANTING APPLICATIONS

The Air Pollution Control Officer shall not issue an Authority to Construct or Permit to Operate unless the applicant has shown that the equipment may be expected to operate without emitting air contaminants in violation of Section 41700, 41701, or 44300 (et.seq.) of the Health & Safety Code, or of the District Rules and Regulations. Prior to issuing the PTO, the District will verify that the equipment has been installed pursuant to the ATC.

DISTRICT RULE NO. 207—REVIEW OF NEW OR MODIFIED SOURCES

This rule requires that the project be publicly noticed prior to issuance of the permits, and identifies the BACT and offset provisions. The permits will be conditioned such that compliance with the emission limits established by this Rule will be continuously monitored.

SECTION 4.1 - BEST AVAILABLE CONTROL TECHNOLOGY

Best Available Control Technology is defined as: a) has been contained in any State Implementation Plan and approved by EPA; b) the most stringent emission limitation or control technique that has been achieved in practice for a class of source, or c) any other emission limitation or control technique which the District's Air Pollution Control Officer (APCO) finds is technologically feasible and is cost effective. BACT will apply to any air pollutant that results in an emissions increase of 25 pounds per day for NO_x as NO₂ and of volatile organic compounds (VOC); 150 pounds per day of SO_x as SO₂ and of Total Suspended Particulates (TSP); 550 pounds per day of CO; or 82 pounds per day of PM₁₀.

SECTION 4.2 - OFFSETS

Emissions offsets for new sources are required when those sources exceed the following emissions levels:

- Volatile organic compounds - 137 lbs/day
- Oxides of nitrogen - 137 lbs/day
- Sulfur oxides - 150 lbs/day
- Carbon Monoxide - 550 lbs/day
- Total Suspended Particulates - 150 lbs/day
- Particulate Matter less than 10 microns - 82 lbs/day

The emission offsets provided shall be adjusted according to the distance of the offsets from the MLPP. The ratios range from 1:1 to 2.5:1, depending on the relative offset location, air pollutant attainment status, and interpollutant trading.

DISTRICT RULE NO. 208—STANDARDS FOR GRANTING PERMITS TO OPERATE

This rule contains the criteria by which the District issues Permits to Operate (PTOs) to replace Authorities to Construct.

DISTRICT RULE NO. 213—CONTINUOUS EMISSIONS MONITORING

The requirements of this Rule are applicable to all of the combustion equipment contained in these applications, such that CEMs will be installed, calibrated, maintained, and operated in accordance with EPA standards.

DISTRICT RULE NO. 214—BREAKDOWN CONDITIONS

This is the implementing regulation in which the District has established the criteria for reporting breakdowns.

DISTRICT RULE NO. 218—TITLE V: FEDERAL OPERATING PERMITS

The permits will be conditioned such that the facilities' Title V permit must undergo a "Major Modification" prior to combusting fuel in the gas turbines. Upon completing this Title V permit issuance for this "Major Modification", the facility will be in compliance with the requirements of this Rule.

DISTRICT RULE NO. 219—TITLE IV: ACID DEPOSITION CONTROL

The facility is presently an “Acid Rain” source, and will remain so after this project. The District’s Acid Rain permits are incorporated into a facilities Title V Permit.

DISTRICT RULE NO. 400—VISIBLE EMISSIONS

The equipment can not exceed the 20% opacity standard.

DISTRICT RULE NO. 402—NUISANCES

A person shall not discharge from any source whatsoever such quantities of air contaminants which cause injury, detriment, nuisance or annoyance to any considerable number of persons or to the public. Appropriate conditions will be included on the permits to ensure compliance with the requirements of this Rule.

DISTRICT RULE NO. 403—PARTICULATE MATTER

The 0.15 grains per dry standard cubic foot emission limit is applicable to the Gas Turbines at the facility, but this standard is superseded by the emission limitations imposed through the NSR (Rule 207) permitting process.

DISTRICT RULE NO. 404—SULFUR COMPOUND AND NITROGEN OXIDES

The Gas Turbines are subject to BACT limits imposed by Rule 207 and are therefore exempt from the requirements of this Rule.

DISTRICT RULE NO. 412—SULFUR CONTENT OF FUELS

This rule requires that the sulfur content of any gaseous fuel combusted contain 50 grains or less of sulfur per 100 cubic feet.

DISTRICT RULE NO. 421—VIOLATIONS AND DETERMINATION OF COMPLIANCE

This Rule provides standards for compliance determinations required by, or derived from federal law.

DISTRICT RULE NO. 423—NEW SOURCE PERFORMANCE STANDARDS (NSPS)

40 CFR Part 60, Subpart A - General Provisions. The facility is subject to the requirements of this part because the equipment is subject to 40 CFR Subpart GG.

The notification and record keeping, performance tests, compliance with standards and maintenance requirements, circumvention, monitoring requirements, and general notification and reporting requirement provisions contained in §§60.7, 60.8, 60.11, 60.12, 60.13, and 60.19 will be subsumed under the testing, monitoring, reporting requirements established as conditions on this permit pursuant to District requirements. This will include initial testing, annual testing, record keeping, reporting, and the requirement to monitor operations with the use of CEMs.

40 CFR Part 60, Subpart GG -Standards Of Performance For Stationary Gas Turbines. The Gas Turbines are subject to the requirements of this NSPS. In addition to utilizing good combustion practices and combusting only natural gas, the Gas Turbines utilize dry-low NOx combustors, and the back-end control of SCR to

limit pollutant emissions. The allowable NOx concentration limit derived from §60.332(a)(1) would be 141 ppmvd.

The allowable SO2 concentration limit derived from §60.333 would be 150 ppmv.

The testing and monitoring requirements contained in §§60.334 and 60.335 will be subsumed under the testing and monitoring requirements established under the NSR conditions contained on the permits. This will include the annual emissions testing requirement and the requirement to monitor operations with the use of CEMs.

DISTRICT RULE NO. 424—NATIONAL EMISSION STANDARDS FOR HAZARDOUS AIR POLLUTANTS (NESHAPS)

40 CFR Part 61, Subpart A -General Provisions. The facility is subject to the requirements of this part because the facility is subject to 40 CFR Part 61, Subpart M.

40 CFR Part 61, Subpart M -National Emission Standard For Asbestos
The facility is subject to the requirements of 61.145 - 61.147, Standards for Demolition and Renovation.

DISTRICT RULE NO. 431—EMISSIONS FROM ELECTRIC POWER BOILERS

This rule establishes numerous requirements on Boilers 6-1 and 7-1 at the Moss Landing Power Plant. Included in these requirements is the elimination of fuel oil as a primary fuel (allowed only for emergency use) and a NOx limit of 10 ppm when combusting gaseous fuels with future effective dates of December 31, 2000 for the first unit and December 31, 2001 for the second unit.

The elimination of fuel oil and the 10 ppm NOx limit when combusting gaseous fuels established the methodology for calculating both the historical (baseline) emissions for the facility, and the future potential to emit of Boilers 6-1 and 7-1. In calculating the baseline for the facility, the District utilized the natural gas emission factors including this 10 ppm NOx limit for the heat input from the fuel oil combusted during the baseline period.

ENVIRONMENTAL SETTING

METEOROLOGICAL CONDITIONS

The semi-permanent Pacific High over the eastern Pacific Ocean dominates the climate at the project site. During the summer months, the high blocks low pressure systems from passing through the Monterey Bay area. The summer is typically mild with little precipitation. The onshore airflow typical in the summer over the cool ocean waters results in the fog and clouds common along the Northern California coast. On an annual basis, the onshore winds from the western quadrant, occur 39% of the time (MLPP 1999a and 1999b).

During the winter months, the Pacific High weakens and migrates to the south allowing Pacific storms into California. Most of the annual rainfall of 20 inches occurs between November and March. During the winter, winds from the east are more frequent, resulting from land temperature being cooler than the ocean temperatures. Annual wind roses can be found in the Application for Certification (MLPP 1999a) and quarterly wind roses can be found in the data responses (MLPP 1999b).

Along with the winds, another climatic factor is atmospheric stability and mixing height. Atmospheric stability is an indicator of the air turbulence and mixing. During the daylight hours of the summer when the earth is heated and air rises, there is more turbulence, more mixing and thus less stability. During these conditions there is more air pollutant dispersion and therefore usually fewer air quality impacts from a single air pollution source like the MLPP. During the winter months between storms, very stable atmospheric conditions can occur, resulting in very little mixing. Under these conditions, little air pollutant dispersion occurs, and consequently higher air quality impacts can result from stationary and mobile source emissions. Mixing heights are generally lower during the winter, along with lower mean wind speeds and less vertical mixing.

EXISTING AIR QUALITY

The Federal Clean Air Act and the California Air Resources Board (CARB) both required the establishment of allowable maximum ambient concentrations of air pollutants, called ambient air quality standards (AAQS). The state AAQS, established by CARB, are typically lower (more protective) than the federal AAQS, which are established by the federal Environmental Protection Agency (USEPA). The state and federal air quality standards are listed in AIR QUALITY Table 1. As indicated in AIR QUALITY Table 1, the averaging times for the various air quality standards (the duration over which they are measured) range from one-hour to an annual average. The standards are read as a concentration, in parts per million (ppm), or as a weighted mass of material per a volume of air, in milligrams or micrograms of pollutant in a cubic meter of air (mg/m³ and µg/m³).

In general, an area is designated as attainment for a specific pollutant if the measured concentrations of that air contaminant do not exceed the standard. Likewise, an area is designated as non-attainment for an air contaminant if that standard is violated. Where not enough ambient data are available to support designation as either attainment or non-attainment, the area can be designated as unclassified. Unclassified areas are normally treated the same as attainment areas for regulatory purposes. An area can be attainment for one air contaminant while non-attainment for another, or attainment for the federal standard and non-attainment for the state standard for the same contaminant. The entire area within the boundaries of a district is usually evaluated to determine the district's attainment status.

The MLPP is located in the Monterey County portion of the Northern Central Coast Air Basin and, as stated above, is under the jurisdiction of the Monterey Bay Unified Air Pollution Control District. The District collects ambient air quality data at

monitoring sites throughout the air basin. The data is used to determine attainment status and define air quality trends. This area is designated attainment for the state's CO, NO₂, SO₂, SO₄ and lead standards, and attainment for the federal SO₂ standard, and unclassified/attainment for the federal CO and NO₂ standards (ARB 1999).

AIR QUALITY Table 1
Federal and State Ambient Air Quality Standards

Pollutant	Averaging Time	Federal Standard	California Standard
Ozone (O ₃)	1 Hour	0.12 ppm (235 µg/m ³)	0.09 ppm (180 µg/m ³)
Carbon Monoxide (CO)	8 Hour	9 ppm (10 mg/m ³)	9 ppm (10 mg/m ³)
	1 Hour	35 ppm (40 mg/m ³)	20 ppm (23 mg/m ³)
Nitrogen Dioxide (NO ₂)	Annual Average	0.053 ppm (100 µg/m ³)	---
	1 Hour	---	0.25 ppm (470 µg/m ³)
Sulfur Dioxide (SO ₂)	Annual Average	80 µg/m ³ (0.03 ppm)	---
	24 Hour	365 µg/m ³ (0.14 ppm)	0.04 ppm (105 µg/m ³)
	3 Hour	1300 µg/m ³ (0.5 ppm)	---
	1 Hour	---	0.25 ppm (655 µg/m ³)
Respirable Particulate Matter (PM ₁₀)	Annual Geometric Mean	---	30 µg/m ³
	24 Hour	150 µg/m ³	50 µg/m ³
	Annual Arithmetic Mean	50 µg/m ³	---
Sulfates (SO ₄)	24 Hour	---	25 µg/m ³
Lead	30 Day Average	---	1.5 µg/m ³
	Calendar Quarter	1.5 µg/m ³	---
Hydrogen Sulfide (H ₂ S)	1 Hour	---	0.03 ppm (42 µg/m ³)
Vinyl Chloride (chloroethene)	24 Hour	---	0.010 ppm (26 µg/m ³)
Visibility Reducing Particulates	1 Observation	---	In sufficient amount to produce an extinction coefficient of 0.23 per kilometer due to particles when the relative humidity is less than 70 percent.

In part of 1993 and 1994, the District established the Moss Landing Air Monitoring Program (Moss 1996) that collected meteorological and ambient air quality data (including NO₂, NO_x, PM₁₀, PM_{2.5}, fallout type particulate – FTP) and in the vicinity of the MLPP, in response to local citizen complaints. The five monitoring sites were located to the east, west, and south of the operating Moss Landing Power Plant and the National Refractories and Minerals facilities.

The year long monitoring program concluded that local ambient PM10 data were dominated by sea salts, soils, or soot from the wildfires in Malibu – local industries did not contribute significantly to PM10 concentrations. There was some correlation of FTP episodes (acidic iron particles 50 micron and larger) with the use of fuel oil at the Moss Landing Power Plant, but FTP was not considered a health hazard as it is not inhalable. The data did not demonstrate a significant relationship between fuel use at the two industrial facilities and ambient NOx measurements. The program found ambient levels very low, with local vehicle traffic tending to dominate the diurnal patterns of NO and NO2.

AMBIENT OZONE

Ozone is not directly emitted from stationary or mobile sources, but is formed as the result of chemical reactions in the atmosphere between directly emitted air pollutants. Nitrogen oxides (NOx) and hydrocarbons (Volatile Organic Compounds [VOCs]) interact in the presence of sunlight to form ozone. The reaction can take several hours to occur, so ozone generally forms downwind and/or lags the timing of the air pollutant emissions peaks.

The area was redesignated to federal maintenance area in 1997 based on attaining the 1-hour ozone standard in 1990 and submitting a Maintenance Plan in 1994 (District 1999b). The area is non-attainment of the state 1-hour ozone standard, as shown by the data in AIR QUALITY Table 2. Salinas is a close ambient ozone monitoring station, but the Hollister and Pinnacles National Monument stations are also representative of the more regional characteristics of ozone.

AIR QUALITY Table 2

North Central Coast Air Basin State 1-hour Ozone Ambient Air Quality Data (ppm)

Monitoring Station	1-hour Measurements	1995	1996	1997	1998	1999
Salinas – Natividad Rd.	Max. concentration (ppm)	0.06	0.07	0.06	0.06	0.06
	# days exceed standard	0	0	0	0	0
Pinnacles National Monument	Max. concentration (ppm)	0.14	0.12	0.11	0.12	0.11
	# days exceed standard	6	14	1	6	2
Hollister - Fairview Rd.	Max. concentration (ppm)	0.1	0.1	0.08	0.11	0.08
	# days exceed standard	1	3	0	5	0
California Ozone Ambient Air Quality Standard: 0.09 ppm (1-hour average)						

Source: ARB 1999

In the most recent ARB report on the contribution of various districts to ozone violations in other districts (ARB 1996), the San Joaquin Valley Air Basin and the San Francisco Bay Area contribute to ambient ozone levels in the North Central Coast Air Basin, a downwind district. The relative contribution of San Joaquin Air Basin air pollutant emissions to North Central Coast air quality is uncertain, but the Bay Area's contribution is defined as overwhelming, designating Bay Area emissions as the sole cause of identified ozone exceedances in North Central

Coast. Most¹ measured North Central Coast ozone violations occur in Hollister and Pinnacles, which are adjacent to these contributing air basins. This widespread contribution from one geographic area to another demonstrates the regional and temporal nature of the ozone problem and ozone formation.

In 1997, the US EPA proposed a new 8-hour ozone standard of 0.08 ppm, in addition to the federal 1-hour standard of 0.12 ppm. Legal challenges have placed the new standard in the federal courts. Pending appeals, the current federal 1-hour ozone standard remains in place and 8-hour ozone data is being collected and reported. The US EPA remains convinced that there is not a disconnect between controls for the 1-hour standard and the more stringent 8-hour standard. Whatever progress is made now toward attaining, or maintaining, the 1-hour federal standard will only speed attainment of the more protective 8-hour standard since planning for the 8-hour standard does not have to be completed until 2003 and attainment not reached until 2005 at the earliest. AIR QUALITY Table 3 shows some representative 8-hour ozone data for the North Central Coast Air Basin. Again, relative location to upwind air basins and transport are the dominant characteristics of the measured exceedances.

AIR QUALITY Table 3
North Central Coast Air Basin State 8-hour Ozone Ambient Air Quality Data (ppm)

Monitoring Station	1-hour Measurements	1995	1996	1997	1998	1999
Salinas – Natividad Rd.	Max. concentration (ppm)	0.05	0.06	0.05	0.05	0.06
	# days exceed standard	0	0	0	0	0
Pinnacles National Monument	Max. concentration (ppm)	0.10	0.10	0.09	0.10	0.09
	# days exceed standard	3	9	1	5	1
Hollister - Fairview Rd.	Max. concentration (ppm)	0.08	0.09	0.07	0.09	0.08
	# days exceed standard	1	1	0	1	0
Proposed Federal Ozone Ambient Air Quality Standard: 0.08 ppm (8-hour average)						

Source: ARB 1999

AMBIENT PM10

PM10 can be emitted directly or it can be formed many miles downwind from emission sources when various precursor pollutants interact in the atmosphere. Gaseous emissions of pollutants like NO_x, SO_x and VOC from turbines, and NH₃ from NO_x control equipment can, given the right meteorological conditions, form particulate matter known as nitrates (NO₃), sulfates (SO₄), and organics. These pollutants are known as secondary particulates, because they are not directly emitted but are formed through complex chemical reactions in the atmosphere.

¹ The North Central Coast Air Basin also measures ozone violations at Scotts Valley, which is on the border with the Bay Area Air Basin only.

The basin has not recently experienced any violations of the state and federal annual and the federal 24-hour PM10 ambient air quality standards. PM10 ambient air quality data presented in AIR QUALITY Table 4 show that there have been violations of the state 24-hr standard. Therefore, the area is non-attainment of the state PM10 24-hour standard, and attainment of the state and federal annual, and the federal 24-hour PM10 standards.

AIR QUALITY Table 4
State 24-hour PM10 Ambient Air Quality (µg/m3)

Monitoring Station	Standard	1995	1996	1997	1998	1999	CAAQS
Moss Landing Sandholt Rd.	24-hour	---	---	91	52	91	50
	# of days above ^a	---	---	7	1	2	---
Watsonville Airport Blvd.	24-hour	42	44	35	46	46	50
	# of days above ^a	0	0	0	0	0	---
Salinas ^b Natividad Rd.	24-hour	50	50	59	52	39	50
	# of days above ^a	0	0	1	1	0	---
<p>a. PM10 measurements only occur every 6 days, so the actual number of days that violate the standard can be 6 times greater than the number shown here.</p> <p>b. Salinas is the most representative ambient air monitoring station. Sea salt and sand dominate the PM10 readings at the Moss Landing station.</p>							

Sources: Moss 1996, ARB 1999, District 1999a

As part of their planning and monitoring efforts, the District initiated speciation studies of PM10 measurements from the ambient air monitoring stations at Moss Landing (District 1999a and Moss 1996). The 1996 study reported on daily PM10 measurements from mid-1993 to mid-1994 for the Moss Landing area. In 1996, the District began submitting PM10 filters to CARB for chemical speciation studies. These studies found that sea salt was the overwhelming contributor to the PM10 measurements in the Moss Landing area. The 1999 study found that the seven 1997 PM10 exceedances would not have occurred without the sea salt burden. The results were similar to that of the Davenport air monitoring station, also located on the coastline and studied in the same 1999 report.

Therefore, Staff believes that the Moss Landing PM10 peak measurements are not representative of the highest anthropogenic (man-made) PM10 measurements for the region. Measured PM10 peaks at Salinas, to the south, are barely above the state standard and peak 24-hour PM10 measurements at the Watsonville Airport, to the north, are just below the state standard. The ambient air monitoring station in Salinas will be used as representing the worst case PM10 measurements for the Moss Landing area. While Salinas only measured one day over the State 24-hour PM10 standard in 1997 and again in 1998, the actual number of days over the standard could be six times as high since the measurements only occur every six days.

PROJECT DESCRIPTION AND EMISSIONS

The present MLPP consists of seven generating units, 10 exhaust stacks, 19 fuel oil tanks, and 2 seawater intake and outfall structures. Units 1 through 5 and eight associated stacks are inoperable and the permits were surrendered. The applicant's proposal includes four new combined cycle combustion turbine generator sets. The new combustion turbines will exhaust to four new un-fired heat recovery steam generators, which supply steam to two new steam turbines with new once-through seawater-cooled condensers. The cooling seawater will be drawn through the existing Units 1 through 5 intake structure and returned via the existing seawater outfall structure for Units 6 and 7.

Existing boiler Units 6 and 7 will continue to operate, with some outage time for the SCR retrofit, during construction of the four new combustion turbine combined cycle units. Baseline emissions calculations after the installation of SCR will be used to generate emission reductions to offset some of the air emissions from the new combined cycles.

CONSTRUCTION

The construction of the new combustion turbine combined cycle power plant will include the following ancillary facilities and activities:

- Preparation of construction laydown and parking areas,
- Construction of cooling seawater pipeline from the new MLPP to the existing once-through seawater cooling intake structure for decommissioned Units 1 - 5,
- Construction of cooling seawater pipeline to the existing once-through seawater cooling outfall structure Units 6 and 7, and
- Construction of a natural gas pipeline to existing pipelines.

Additional construction activities will be occurring on-site, either in series or parallel with the construction activities associated with the combustion turbines. These include:

- Demolition of the existing 19 fuel oil tanks;
- Demolition of eight 225-foot stacks associated with inoperable Units 1 - 5;
- Installation of selective catalytic reduction systems in existing Units 6 and 7;
- Replacement of the high pressure steam turbine rotors on existing Units 6 & 7;
- Construction of an ammonia unloading facility and ammonia tank farm for the SCR systems for the four combustion turbines and Units 6 and 7.

All of the ancillary facilities and activities described above are within the existing plant fenceline.

PROJECT SITE

The combustion turbine combined cycle power plants will take approximately two and half years to construct. The power plant project construction itself consists of three major areas of activity: 1) the civil/structural construction 2) the mechanical construction, and 3) the electrical construction. The largest air emissions are generated during the civil/structural activity, where work such as grading, site preparation, foundations, underground utility installation and building erection will occur. These types of activities require the use of large earth moving equipment, which generate considerable combustion emissions themselves, along with creating fugitive dust emissions. The mechanical construction includes the installation of the heavy equipment, such as the combustion and steam turbines, the heat recovery steam generators, condenser, pumps, piping and valves.

Although not a large fugitive dust generation activity, the use of large cranes to install such equipment generates significantly more emissions than other construction equipment onsite. Finally, the electrical equipment installation occurs, involving such items as transformers, switching gear, instrumentation and wiring, and are relatively small emissions generating activities in comparison to the early construction activities. Not surprisingly, the largest level of construction emissions for the project will occur from the project site activity, most of it due to earth moving and grading activities and large crane operations. The construction of facilities will generate air emissions, primarily fugitive dust from earth moving activities and combustion emissions generated from the construction equipment and vehicles.

The projected highest daily emissions, based on the highest monthly emissions over the 29 month combined cycle construction activity are shown in AIR QUALITY Tables 5 and 6. It should be noted that the emissions shown in Tables 5 and 6 will likely not occur on one single day. For example, the highest NO_x emissions for the project site activity occur during April 2001, while the highest PM₁₀ emissions for the project site activity occur during November 2000.

SEAWATER AND NATURAL GAS PIPELINES

The construction of the seawater intake and outfall water connection, and the natural gas pipelines includes activities such as clearing and grading, trenching, stringing the pipes and fittings, lining and connecting, and backfill and clean-up. The emissions generating equipment from these activities are included in the emissions in AIR QUALITY Tables 5 and 6.

TANK AND STACK DEMOLITION

The applicant is proposing that the tank farm demolition take about 30 months. The demolition will begin before the construction of the combined cycles, but will overlap some combined cycle construction activities. Air emissions for the tank demolition activities are shown in AIR QUALITY Tables 5 and 6.

SCR INSTALLATION FOR UNITS 6 AND 7

The applicant is proposing to install the SCR systems in Unit 6 and then Unit 7, over a 12 month period. The SCR installation activities will overlap much of the early construction activities for the combustion turbines ((MLPP 1999b). Some of the expected air emissions for the SCR installation are shown in AIR QUALITY Tables 5 and 6.

AIR QUALITY Table 5
Maximum Daily Construction Emissions – November 2000 (lbs/day)

Activity/Emission ^a	NOx	CO	VOC	SOx	PM10
Onsite – Combustion					
New Generation Project	119.63	258.76	21.97	3.95	8.57
Tank Demolition	120.36	24.73	7.91	3.37	7.41
SCR Project	132.06	29.52	8.79	3.86	8.00
Subtotal	372.05	313.01	38.67	11.18	23.98
Onsite – Fugitive					
New Generation Project	-	-	-	-	24.11
Tank Demolition	-	-	-	-	18.80
SCR Project	-	-	-	-	0.48
Subtotal					44.39
Offsite					
Worker Travel, Truck/Rail Deliveries	178.6	1,192.06	101.88	4.54	7.58
Total Emissions					
Totals	550.65	1,505.07	140.55	15.72	75.95
a. All emissions activities based on an 10-hour workday					
b. Maximum daily emissions include site construction and pipeline activities.					

Sources: MLPP 1999a and MLPP 2000b

AMMONIA FACILITY

The ammonia unloading facility and ammonia tank farm are integral parts of the SCR retrofit of Units 6 and 7 and the new combustion turbines. The air emissions from the construction of the ammonia unloading facility and tank farm are included in the construction emissions in AIR QUALITY Tables 5 and 6.

OTHER MLPP CONSTRUCTION PROJECTS

An Oily Water Separator, Energy Management Center, and onsite maintenance activities will be constructed or occur concurrently with the above construction projects. The cumulative MLPP construction emissions are included in Tables 5 and 6.

AIR QUALITY Table 6
Maximum Daily Construction Emissions – April 2001 (lbs/day)

Activity/Emission ^a	NOx	CO	VOC	SOx	PM10
Onsite – Combustion					
New Generation Project	242.60	520.43	45.07	8.02	18.03
Tank Demolition	116.86	22.55	7.38	3.29	6.97
SCR Project	122.93	27.94	8.25	3.6	7.47
Subtotal	482.39	570.92	60.70	14.91	32.47
Onsite – Fugitive					
New Generation Project	-	-	-	-	11.62
Tank Demolition	-	-	-	-	18.28
SCR Project	-	-	-	-	0.45
Subtotal	-	-	-	-	30.35
Offsite					
Worker Travel, Truck/Rail Deliveries	234.39	1,624.91	137.82	5.77	8.89
Total Emissions					
Totals	716.78	2,195.83	198.52	20.68	71.71

c. All emissions activities based on an 10-hour workday

d. Maximum daily emissions include site construction and pipeline activities.

Sources: MLPP 1999a and MLPP 2000b

OPERATIONAL PHASE

EQUIPMENT DESCRIPTION

- The major components of the MLPP consists of the following:
- Four combustion turbine generators (CTG), using the General Electric Model 7FA, model PG7241, nominally rated at 171.9 MW. Each of the CTGs would be equipped with evaporative inlet air coolers;
- Four unfired heat recovery steam generators (HRSG) and ancillary equipment; and
- Two steam turbines with seawater cooled condensers, each rated at 195.3 MW;

The existing steam boilers, Units 6 and 7 consist of:

- Two boilers, each rated at 7,048 MMBtu/hour;
- Two steam turbines, each rated at 1515 MW after the steam rotor replacement; and
- Seawater cooling intake and outfall structures.

EQUIPMENT OPERATION

The new CTGs and existing boilers will burn only natural gas, and there are no provisions for an alternative back-up fuel for either the combustion turbines or the Unit 6 and 7 boilers – the oil tank farm will be removed.

The applicant is requesting that the combined cycle projects be analyzed with the assumption of 4 hours of start-up per day, and 400 hours of start-up per turbine each year. There are various durations of start-up of the CTGs, depending on length of time that the turbine has been shutdown and the temperatures and pressures on the steam turbine side of the power generation block, so the exact number of start-ups that correlates to 400 hours is not certain. Because of the thermal efficiency of the project, it is highly likely that the combustion turbines will operate extensively, therefore extended shutdowns are not likely to occur. The expected capacity factors of the combustion turbine units will be close to 100 percent.

The usual practice is to define start-ups as either a hot start, a warm start or a cold start, with the start-up period being defined as the length of time until the gas turbine is fully loaded, that is, producing baseload electrical power. A hot start would occur after an overnight turbine shutdown. The duration of a hot start is relatively short, approximately half an hour. A warm start-up is also approximately 30 minutes in duration, although the steam turbine ramping up period would be longer than a hot start. A warm start-up duration would occur after a typical weekend shutdown (approximately 60 to 72 hours). A cold start takes considerably longer, on the order of two hours. However, this type of start-up would be very rare, occurring only after the turbines have been under extended shutdown, such as the annual maintenance inspection that the manufacturer may require.

EMISSION CONTROLS

The exclusive use of an inherently clean fuel, natural gas, will limit the formation of SO₂ and PM₁₀ emissions. Natural gas contains very small amounts of a sulfur compound known as mercaptan, which when combusted, results in sulfur compound emissions in the flue gas. However, in comparison to other fuels used in power plants, such as fuel oil or coal, the sulfur dioxide emissions from the combustion of natural gas are very low. A sulfur content of 0.25 grains of sulfur per 100 standard cubic feet of natural gas was assumed for the SO₂ emission calculations.

Like SO₂, the emissions of PM₁₀ from natural gas combustion are very low compared to the combustion of fuel oil or coal. Natural gas contains very little noncombustible gas or solid residue, and therefore it is a relatively clean-burning fuel.

To minimize NO_x, CO and VOC emissions during the combustion process, the GE turbine is equipped with the latest dry low-NO_x combustor. A more detailed discussion of this combustion technology is presented in the Mitigation section of this analysis. After combustion, the flue gases pass through the heat recovery steam generator (HRSG), where catalyst systems are placed to further reduce NO_x,

CO and VOC emissions. MLPP is proposing to use a Selective Catalytic Reduction (SCR) system to reduce NOx emissions. A more complete discussion of these catalyst technologies is included in the Mitigation section.

PROJECT OPERATING EMISSIONS

A single CTG's criteria air pollutant emissions during short periods of time, one hour or less, are shown in AIR QUALITY Table 7. As this table shows, the highest emissions are from the combustion turbine during startup compared to emissions during steady state, full load operation. Most notable, emissions of NOx, VOC and CO are significantly higher during startup. These higher emissions occur because the turbine combustor technology is designed for maximum efficiency during full load steady state operation, not start-up. Start-up SO2 emissions are less than steady state SO2 emissions because less fuel is fired during a start-up.

AIR QUALITY Table 7
CTG Hourly (unless noted) Emissions (pounds per hour [lbs/hr])

Operational Profile	NOx	SO2	PM10	VOC	CO
CTG Start-up (1 hour)	80	1.2	9	16	902
CTG Start-up (4 hours)	320	---	---	64	3608
CTG Steady State @ 100% load	17.23	1.30	9.0	4.79	37.76

Sources: MLPP 1999a, District 2000c

During startup and shutdown, combustion temperatures and pressures are rapidly changing, which results in less efficient combustion and higher emissions. Also, the flue gas controls, the catalyst discussed above, operate most efficiently when the turbine operates near or at full load, at which the catalysts are at or near design temperatures. Those flue gas controls are not as effective during the transitory temperature changes that occur during startup and shutdown. The start-up emissions data reflect information provided by the applicant (MLPP 1999a) that are believed to be most representative of existing and proposed CTG projects.

The daily emissions from the project are shown in AIR QUALITY Table 8. The table shows different operating scenarios, and the resultant emissions, including CTG startup (worst case of 4 hours of start-up) and steady state operation. The highest daily project emissions scenario is presented in the last row of the table. It assumes 4 hours of start-up per each turbine. However, since the start-up of the second set of two CTGs is staggered by 2 hours, this set of CTGs only operates 18 hours for calculating the highest potential daily NOx, CO, and VOC emissions.

Annual emissions are summarized in the AIR QUALITY Table 9. MLPP has requested that the project be analyzed assuming 400 hours of start-ups per turbine per year and 8000 hours of steady state operation per turbine per year. For comparison, staff has presented the scenario of all four turbines operating non-stop throughout the year. The highest annual emissions of SO2 and PM10 would occur with this scenario, since those emissions are a function of the quantity of fuel burned. The annual emissions of NOx, VOC and CO are higher with the inclusion of the start-up emissions. Also included in

Table 9 are the typical initial commissioning air emissions, which not surprisingly, are not insignificant in comparison to the likely commercial operation annual emissions. These values need to be refined to reflect actual commissioning activities at the MLPP project site.

AIR QUALITY Table 8
Project Daily Emissions (pounds per day [lbs/day])

Operational Profile	NOx	SO2	PM10	VOC	CO
1 turbine with 4 hours start and 20 hours steady state operation	664.6	31.2	216.0	159.8	4,363.2
1 turbine with 4 hours start and 18 hours steady state operation ^a	630.1	28.6	198.0	150.2	4,287.7
1 turbine with 24 hours steady state operation	413.5	31.2	216.0	115.0	902.3
4 turbines operate full load 24 hours	1,654.1	124.8	864.0	459.8	3,609.1
4-hr start-ups/4 CTGs plus 20 hours/2 CTGs and 18 hours/2 CTGs steady state operation	2,589.4	119.6	828.4	620.0	17,301.8
a. Two CTGs are assumed to start together, while the other two CTGs' startup is staggered by 2 hours.					

Source: MLPP 1999a and District 2000c

AIR QUALITY Table 9
Project Annual Emissions (tons per year [ton/yr])

Operational Profile	NOx	SO2	CO	VOC	PM10
400 hours of start-up and 8000 hours of steady state operation	339.7	21.8	1,325.8	89.4	151.2
Initial Commission Phase – 300 hours of operation (typical ^a)	135	NA	20	56	431
a. These emissions data were not provided by the applicant, but are from a similar sized combustion turbine project (La Paloma Generating Project).					

Sources: MLPP 1999a, District 2000c, La Paloma 1999

AMMONIA EMISSIONS

Due to the large combustion turbines used in this project and the need to control NOx emissions, significant amounts of ammonia will be injected into the flue gas stream as part of the SCR system. Not all of this ammonia mixes in the flue gases to reduce NOx; a portion of the ammonia passes through the SCR and is emitted, unaltered, out the stacks.

These ammonia emissions are known as ammonia slip. The District has limited the MLPP to an ammonia slip no greater than 5 ppm, which is the current lowest ammonia slip level being achieved and permitted throughout California for SCR controlled power plants. The ammonia slip will be limited to approximately 12.73 lbs/hour/CTG, 300.5 lbs/day/CTG, and 1,221.1 lbs/day/project (District 2000c).

These limits exclude the start-up periods, when ammonia is generally not injected since the SCR catalysts are not yet at operating temperature.

It should be noted that the ammonia slip of 5 ppm is usually associated with the degradation of the SCR catalyst, usually in a time frame of five years or more after initial operation. At that point, the SCR catalysts are removed and replaced with new catalysts. Through most of the operation of the SCR system, ammonia slip emissions are usually in the range of 1 to 2 ppm, corresponding to a project mass emissions in this case to approximately 400 pounds per day. The implications of these ammonia emissions are discussed later in this analysis.

FALLOUT TYPE PARTICULATES

Natural gas-fired combined cycles do not emit Fallout Type Particulates (FTP) or contribute to the secondary formation of FTP in the atmosphere. This is due to the exclusive use of natural gas, which is inherently low in sulfur and sulfur compounds, and a different temperature profile through the heat recovery section compared to boilers such as Units 6 and 7.

INITIAL COMMISSIONING PHASE OPERATION AND EMISSIONS

Prior to the first firing of the combustion turbines, a temporary HRSG boilout chemical cleaning boiler may be used, similar to what was done on the La Paloma project. The combustion turbines will then undergo the initial firing and commissioning phase of the project schedule.

Over each commission phase, MLPP will be limited to no more than 300 hours of operation without the SCR system. Additionally, all NO_x, CO, VOC, PM₁₀ and SO₂ air emissions will be included in the quarterly emissions. It should be noted that it is in the owner's best interest to minimize this initial commissioning phase in order for the project to be declared ready for commercial operation and thus able to generate revenues. Therefore, it is expected that this initial commissioning phase will, to the extent feasible, be as short as possible and thus minimize the higher than normal operations emissions that are inevitable during the necessary testing.

The District has a rule that at the end of the commissioning period, written results of a source test demonstrating compliance with the permit limits must be submitted within 30 days.

FACILITY CLOSURE

Eventually the MLPP will close, either as a result of the end of its useful life, or through some unexpected situation such as a natural disaster or catastrophic facility breakdown. When the facility closes, then all sources of air emissions would cease and thus all impacts associated with those emissions would no longer occur. If MLPP were to decide to dismantle the project, there would likely be fugitive dust emissions associated with this dismantling effort. The Facility Closure Plan to be submitted to the Energy Commission Compliance Project Manager should include the specific details regarding how MLPP plans to demonstrate compliance with District rules and fugitive dust and construction emission control measures.

PROJECT INCREMENTAL IMPACTS

MODELING APPROACH

The applicant performed an air dispersion modeling analysis to evaluate the project's potential impacts on the existing ambient air pollutant levels, both during construction and operation. An air dispersion modeling analysis usually starts with a conservative screening level analysis. Screening models use very conservative assumptions, such as the meteorological conditions, which may or may not actually occur in the area. The impacts calculated by screening models, therefore, can be double or more than the actual or expected impacts. If the screening level impacts are significant, refined modeling analysis is performed. A major difference in the refined modeling is that hour-by-hour meteorological data collected in the vicinity of the project site is used. The Industrial Source Complex Short-Term model, Version 3, known as the ISCST3 model, was used for the refined modeling.

CONSTRUCTION IMPACTS

MLPP performed air dispersion modeling analyses of the potential impacts of the cumulative construction activities at the Moss Landing Power Plant site for criteria pollutants² (MLPP 2000b). The analyses included fugitive dust generated from the construction activity (modeled as an area source) and combustion emissions from the equipment (modeled as an area source 2 meters off the ground). The emissions used in the analysis were the highest emissions of a particular pollutant during a one month period, converted to a gram per second emission rate for the model. Most of the highest emissions occurred early in the construction period. The results of this modeling effort are shown in AIR QUALITY Table 10.

The applicant took credit for the temporary shutdown of Units 6 and 7 for SCR installation as a mitigation measure for potential construction PM10 emissions impacts, and did not provide PM10 modeling results in the modeling filing to the County (MLPP 2000b). The applicant used the temporary emissions reductions to get the emissions below the District's CEQA significance level of 82 lbs/day.

Staff does not agree that the 6/7 shutdowns are effective mitigation measures for construction PM10 emissions, and asked the applicant to provide the modeling of the construction PM10 emission impacts. The PM10 impacts, without reductions from 6/7 outages, are included in Table 10 (MLPP 2000c). Modeled construction impacts occur on-site or very close to the fenceline. PM10 emissions, or emission reductions, from the very tall Units 6 and 7 stacks are unlikely to be captured by local PM10 monitoring stations (District 1999a), or mitigate PM10 emissions impacts on-site or at the fenceline.

The results show that the construction activities would further exacerbate existing violations of the state 24-hour and annual average PM10 standards. These predicted impacts are high for a number of reasons. First, the model itself

² The applicant also performed a health risk assessment for the diesel toxic air emissions during construction activities. Please see the Public Health section.

calculates impacts that are very conservative, usually exceeding actual impact levels by a considerable margin. Second, some of the sources of are mobile sources, not stationary sources as input into the model, causing the combustion and fugitive dust emission sources to move around the site. Therefore, as mobile sources, the air quality impacts would not always be at the same locations, so the model results are overstated. Thirdly, it was assumed that all the equipment identified for the modeling evaluation would be running simultaneously. It is doubtful that all the major equipment would all be operating at one time, and thus the impacts are overstated.

Finally, the emissions inputs to the model were from the highest monthly emissions assumed during the construction period. The levels of emissions used reflect a period of activity of approximately one year, not the entire construction period. During the other months of construction work, considerably fewer emissions-generating equipment will be used and thus the impacts will be lower.

AIR QUALITY Table 10
Maximum Project Site Construction Impacts

Pollutant	Averaging Time	Impact ($\mu\text{g}/\text{m}^3$)	Background ($\mu\text{g}/\text{m}^3$)	Total Impact ($\mu\text{g}/\text{m}^3$)	Limiting Stnd ($\mu\text{g}/\text{m}^3$)	Percent of Standard
NO ₂	1-hour	276.8 ^a	169	445.8	470	95
	Annual	20.8 ^b	21	41.8	100	42
CO	1-hour	3,197.2	6,900	10,097.2	23,000	44
	8-hour	1,065.1	3,222	4,287.1	10,000	43
SO ₂	3-hour	71.2	79	150	1300	12
	24-hour	7.9	13	20.9	130	16
	Annual	1.9	0	1.9	80	2
PM ₁₀	24-hour	46.0	59	105	50	210
	Annual ^c	10.9	20.8	31.7	30	106
	Annual ^d	10.9	21.4	32.3	50	65
a. Ozone limiting method applied to the one-hour impacts. ³ b. ARM applied to the annual average, using the default value of 0.75. ³ c. Annual arithmetic mean, state standard d. Annual geometric mean, federal standard.						

Source: MLPP 1999a, MLPP 1999c, MLPP 2000b

³ Because the NO_x emissions from combustion are mostly in the form of nitrogen oxide (NO), the use of the Ozone Limiting Method (OLM) or the Ambient Ratio Method can be used to refine estimations of NO₂ emission impacts. The EPA (Appendix W of 40 CFR Part 51) and CARB recommend the use of the ozone limiting method as a second level screening analysis for the determination of NO₂ impacts. The California Air Pollution Control Officer's Association (CAPCOA 1987) also recommends the use of the OLM. These methods assume that the conversion rate of NO to NO₂ is determined by the amount of ozone (O₃) present in the atmosphere. O₃ reacts rapidly with NO forming NO₂ and molecular oxygen. The OLM assumes that approximately ten percent of the oxides of nitrogen emissions from a combustion source are NO₂, and that conversion of the remaining 90 percent of NO to NO₂ is strongly influenced by the available ozone, hour by hour.

Although construction of the MLPP and ancillary facilities will result in unavoidable short-term impacts, it is doubtful that the general public would be exposed to the construction impacts associated with the project. This is because of the project's rather isolated location away from any population centers in a heavily industrial area where the impacts would actually occur. Nevertheless, staff believes that the impact from the construction of the project could have a significant and unavoidable impact on the PM10 ambient air quality standards, and should be avoided or mitigated, to the extent feasible.

PROJECT OPERATION IMPACTS

The air quality impacts of project operation are shown in the following sections for combustion turbine steady-state operations, and the transitory conditions during turbine start-up and the special meteorological conditions associated with fumigation and shoreline fumigation.

STEADY STATE MODELING

MLPP provided a refined modeling analysis, using the ISCST3 model to quantify the potential impacts of the project during normal steady state operation and conditions. The results of this modeling analysis are summarized shown in AIR QUALITY Table 11. The analysis assumes worst case ambient temperatures during steady state operation to predict the highest impacts possible.

COMBUSTION TURBINE START-UP MODELING

MLPP provided a refined modeling analysis, using the ISCST3 model to quantify the potential impacts of the project during start-up conditions. The results of this modeling analysis are summarized in AIR QUALITY Table 11. The start-up emissions for NOx and CO are generally higher since the combustion turbine and downstream components, including the SCR, are not at design (elevated) temperatures. This results in less complete combustion (i.e., increased CO emissions) and relatively uncontrolled NOx emissions.

The modeling assumes these higher emission rates with stack parameters for turbine operation at 50 percent load. The low load conditions can cause higher impacts since the flue gas temperature and velocity are relatively low, resulting in less plume rise away from the facility. This effect can be seen in the calculated SO2 impacts. During start-up, fuel use is still low, resulting in low SO2 emissions rates compared steady state operation. However, the 50 percent stack parameters, result in higher SO2 impacts during start-up than steady state operation.

FUMIGATION MODELING

During the early morning hours before sunrise, the air is usually very stable. During such stable meteorological conditions, emissions from elevated stacks rise through this stable layer and are dispersed. When the sun first rises, the air at ground level is heated, resulting in a vertical (both rising and sinking air) mixing of air for a few hundred feet or so. Emissions from a stack that enter this vertically mixed layer of air will also be vertically mixed, bringing some of those emissions down to ground

level. Later in the day, as the sun continues to heat the ground, this vertical mixing layer becomes higher and higher, and the emissions plume becomes better dispersed. The early morning air pollution event, called fumigation, usually lasts approximately 30 to 90 minutes.

SHORELINE FUMIGATION MODELING

Additionally, fumigation can occur at shorelines due to the stability differences between the cool stable air mass over the water and the less stable air mass over land. Shoreline fumigation tends to occur on sunny days, and generally persists for 90 minutes. The applicant used the SCREEN3 model, which is an EPA approved model, for the calculation of fumigation impacts and shoreline fumigation impacts. The results of the fumigation modeling analyses are summarized in AIR QUALITY Table 11 (MLPP 1999c).

AIR QUALITY Table 11
Summary of Refined Modeling Maximum 1-Hour Impacts

Pollutant	Averaging Time	Maximum Modeled Concentrations (µg/m3)			
		ISCST3	Fumigation	Shoreline Fumigation	Start-ups (Turbines Only)
NO2	1-hour	20.4	28.5	82.8	148.1 ^a
	Annual	0.17	---	---	---
SO2	1-hour	1.33	1.82	7.11	1.90
	3-hour	0.69	1.18	4.05	1.19
	24-hour	0.10	0.53	0.68	---
	Annual	0.0002	---	---	---
CO	1-hour	95.1	152.7	547.5	2,227.5
	8-hour	184.3	29.77	296.1	---
PM10	24-hour	1.83	4.06	5.91	---
	Annual	0.09	---	---	---

a. Using the ozone limiting method.

Source: MLPP 1999c

PROJECT IMPACTS

MLPP provided a refined modeling analysis, using the ISCST3 model to quantify the potential impacts of the project during normal steady state operation and during start-up and fumigation conditions. The results of these modeling analyses were summarized in AIR QUALITY Table 11. Using the highest impacts from AIR QUALITY Table 11 and the highest measured ambient air quality levels, MLPP predicted the worst case impacts for the various operating scenarios for the project. These impacts are shown in AIR QUALITY Table 12.

AIR QUALITY Table 12
Combustion Turbine Refined Modeling Maximum Impacts

Pollutant	Averaging Time	Impact ($\mu\text{g}/\text{m}^3$) ^a	Back- Ground ($\mu\text{g}/\text{m}^3$) ^e	Total Impact ($\mu\text{g}/\text{m}^3$)	Limiting Standard ($\mu\text{g}/\text{m}^3$)	Percent of Standard
NO ₂	1-hour	148.2 ^b	113	261	470	56
	Annual	0.2	21	21.2	100	21
SO ₂	1-hour	7.1	156	163	655	25
	24-hour	0.7	39	40	109	37
	Annual	0	0	0	80	0
CO	1-hour	2,228	6,900	9,128	23,000	40
	8-hour	296	3,222	3,518	10,000	35
PM ₁₀	24-hour	5.9	59	65	50	130
	Annual ^c	0.01	20.8	20.9	30	70
	Annual ^d	0.01	21.4	21.5	50	43
a. The worst case impacts from AIR QUALITY Table 11. b. Using the ozone limiting method. c. Annual Arithmetic mean d. Annual Geometric Mean e. Background PM ₁₀ , NO ₂ , CO and SO ₂ data was collected between 1988 and 1998 at the Salinas ambient air monitoring station						

Source: MLPP 1999c

The project's PM₁₀ impacts could contribute to existing violations of the state 24-hour PM-10 standards. The highest 24-hour PM₁₀ impacts (5.9 $\mu\text{g}/\text{m}^3$) are relatively large, about 1/10 the state standard itself. Because of the conservatism of the air dispersion model itself, staff believes that the actual impacts from the project would be significantly less than the projected modeled impacts shown in AIR QUALITY Table 12.

The start-up circumstances of the project are such that two combustion turbines will be started simultaneously, and then, two hours later, the last two combustion turbines can be started. There will not be simultaneous start-up of all four turbines. Start-up circumstances can be troublesome for significant air quality impacts for the following reasons. First, emissions (particularly of NO_x and CO) can be high and often uncontrolled, because emission control equipment is not operating at optimum temperature ranges. Second, low volumetric flow rates and exhaust gas temperatures can result in low exhaust plume rise and consequently higher ground level impacts.

The modeling results show that the highest short-term impacts on ambient NO₂ and CO levels do, indeed, occur during start-up circumstances. The modeling analysis above indicates that during a project start-up scenario, the impacts from that start-

up, plus background NO₂ ambient levels, would result in the highest impact of the project on the 1-hour state NO₂ standard. This modeling analysis reflected the use of the Ozone Limiting Method (OLM) to provide a more refined estimate of NO₂ impacts. The highest SO₂ and PM₁₀ impacts occurred during shoreline fumigation conditions.

SECONDARY POLLUTANT IMPACTS

The project's emissions of gaseous emissions, primarily NO_x, SO₂ and VOC, can contribute to the formation of secondary pollutants, namely ozone and PM₁₀, particularly ammonium nitrate PM₁₀ and sulfate. There are air dispersion models that can be used to quantify ozone impacts, but they are used for regional planning efforts where hundreds or even thousands of sources are input into the modeling to determine ozone impacts. There are no regulatory agency models approved for assessing single source ozone impacts. However, because of the known relationship of NO_x and VOC emissions to ozone formation, it can be said that the emissions of NO_x and VOC from the MLPP do have the potential (if left unmitigated) to contribute in some unquantified way to higher ozone levels in the region.

Concerning secondary PM₁₀ (primarily ammonium nitrate) formation, the process of gas-to-particulate conversion is complex and depends on many factors, including local humidity and the presence of other compounds. Currently, there are no agency (EPA or CARB) recommended models or procedures for estimating nitrate or sulfate formation.

Nevertheless, studies during the past two decades have provided data on the oxidation rates of SO₂ and NO_x. The data from these studies can be used to approximate the conversion of SO₂ and NO_x to particulate. This can be done by using an aggregate conversion factor (typically about 0.01 to 1 percent per hour) with Gaussian dispersion models such as ISCST3. The model is run with and without chemical conversion (decay factor) and the difference corresponds to the amount of SO₂ and NO₂ that is converted to particulate. Staff believes that the emissions of NO_x from MLPP do have the potential (if left unmitigated) to contribute, to higher secondary PM₁₀ (particularly of ammonium nitrate) levels in the region.

FALLOUT TYPE PARTICULATES

As discussed above, the natural gas-fired combined cycle will not emit, or contribute to the secondary formation of FTP in the atmosphere. This is due to the exclusive use of natural gas, which is inherently low in sulfur and sulfur compounds, and a different temperature profile through the heat recovery section compared to boilers such as Units 6 and 7. Additionally, as part of the Unit 6 and 7 SCR installation, the project owner is using stainless steel, SS 409, in the new flues and catalyst casings (B&W 2000) and eliminating the use of fuel oil to address FTP concerns from Units 6 and 7.

AMMONIA

As discussed above, the project will have the lowest ammonia permit level for California combined cycle power plants. Staff evaluated the health effects of ammonia emissions in the Public Health section.

CUMULATIVE IMPACTS

To evaluate reasonably foreseeable future impacts as part of the project impacts analysis, the applicant performed a cumulative modeling analysis (MLPP 1999c). The cumulative analysis included potential and/or permitted projects located up to nine miles from the proposed facility site, which is greater than the six mile radius generally specified by staff. The applicant worked with the District to identify potential and/or permitted projects, and to secure the necessary stack parameters to perform the air dispersion modeling.

The Energy Commission staff reviewed the maximum modeled impacts of the combined MLPP project and the potential and/or permitted projects. The results were below allowable District and federal increments. The maximum modeled impacts were above the Prevention of Significant Deterioration (PSD) significance levels for 8-hour CO and 24-hour PM10. However, MLPP's contribution to the impact was insignificant. Therefore, the operation of MLPP does not cause or contribute to cumulative impacts.

VISIBILITY IMPACTS

A visibility analysis of the project's gaseous emissions is required under the Federal Prevention of Significant Deterioration (PSD) permitting program. The analysis addresses the contributions of gaseous emissions (primarily NOx) and particulate (PM10) emissions to visibility impairment on the nearest Class 1 PSD areas, which are national parks and national wildlife refuges. The nearest Class 1 areas to the MLPP Project are the Ventana Wilderness Area and the Pinnacles National Monument to the south and southeast, respectively.⁴ MLPP used the EPA approved model VISCREEN to assess the project's visibility impacts. The results from the VISCREEN modeling analysis indicated that the project's visibility impacts would be below the significance criteria for contrast and perception (MLPP 1999a). Therefore the project's visibility impacts on these Class 1 areas are considered insignificant.

⁴ Class I designations are limited to national parks, wilderness areas and monuments. The San Francisco Bay National Wildlife Refuge (Salinas River), the Monterey Bay National Marine Sanctuary, and the Elkhorn Slough National Estuarine Research Reserve are not currently included on the Class I list.

MITIGATION

APPLICANT'S PROPOSED MITIGATION

CONSTRUCTION MITIGATION

Moss Landing Power Project is proposing a number of control measures to limit fugitive dust during the construction phase of a project (MLPP 1999a). These include the use of chemical stabilizing agents and dust suppressants or gravel areas on site, and the wetting or covering of stored earth materials on site. These proposed measures also require that the transporting of borrow fill dirt material be wetted, be covered, or sufficient freeboard be allowed. They also require the use of paved access aprons, gravel strips, wheel washing or other means to limit mud or dirt carry-out onto paved public roads.

To minimize combustion emissions such as NO_x, CO and PM₁₀, which is not required by District rules, MLPP is proposing to require that contractors: properly maintain vehicle/equipment engines to control exhaust emissions; use low sulfur and low aromatic fuel meeting California standards; and use diesel engines that meet federal emissions standards.

OPERATIONS MITIGATION

The MLPP's air pollutant emissions impacts will be reduced by using emission control equipment on the project and by providing emission offsets. To reduce NO_x emissions, MLPP proposes to use dry-low NO_x combustors in the CTGs. In addition, an ammonia injection grid will be used in conjunction with a Selective Catalytic Reduction system. Ammonia emissions will be limited to 5 ppm.

To reduce CO and VOC emissions, MLPP proposes to use good combustion and maintenance practices. PM₁₀ emissions will be limited by the use of a clean burning fuel (natural gas) and the efficient combustion process of the CTGs. The use of natural gas as the only fuel will limit SO₂ emissions.

DRY LO-NO_x COMBUSTORS

Over the last 20 years, combustion turbine manufacturers have focused their attention on limiting the NO_x formed during combustion. Because of the expense and efficiency losses due to steam or water injection into the combustor cans to reduce combustion temperatures and the formation of NO_x, CTG manufacturers are presently choosing to limit NO_x formation through the use of dry low-NO_x technologies. In this process, firing temperatures remain somewhat low, thus minimizing NO_x formation, while thermal efficiencies remain high. At steady state CTG loads greater than 40 percent load, NO_x concentrations entering the HRSG are 25 ppm corrected to 15 percent O₂. CO concentrations are more variable, with concentrations greater than 100 ppm at 50 percent load, dropping to 5 ppm at 100 percent load.

FLUE GAS CONTROLS

To further reduce the emissions from the combustion turbines before they are exhausted into the atmosphere, flue gas controls, primarily catalyst systems, will be installed in the HRSGs. MLPP is proposing a selective catalytic reduction system to reduce NO_x.

SELECTIVE CATALYTIC REDUCTION (SCR)

Selective catalytic reduction refers to a process that chemically reduces NO_x by injecting ammonia into the flue gas stream over a catalyst in the presence of oxygen. The process is termed selective because the ammonia reducing agent preferentially reacts with NO_x rather than oxygen, producing inert nitrogen and water vapor. The performance and effectiveness of SCR systems are related to operating temperatures, which may vary with catalyst designs. Flue gas temperatures from a combustion turbine typically range from 950 to 1100 °F.

Catalysts generally operate between 600 to 750 °F (ARB 1992), and are normally placed inside the HRSG where the flue gas temperature has cooled compared to the combustion turbine exhaust. At temperatures lower than 600 °F (i.e., during start-up), the ammonia reaction rate may start to decline, resulting in increasing ammonia emissions, called ammonia slip. At temperatures above about 800 °F, depending on the type of material used in the catalyst, damage to some catalysts can occur. The catalyst material most commonly used is titanium dioxide, but materials such as vanadium pentoxide, zeolite, or a noble metal are also used. These newer catalysts (versus the older alumina-based catalysts) are resistant to fuel sulfur fouling at temperatures below 770 °F (EPRI 1990).

Regardless of the type of catalyst used, efficient conversion of NO_x to nitrogen and water vapor requires uniform mixing of ammonia into the exhaust gas stream. Also, the catalyst surface has to be large enough to ensure sufficient time for the reaction to take place. MLPP proposes to use a combination of the dry low-NO_x combustors and SCR system to produce an NO_x concentration exiting the HRSG stack of 2.5 ppm, corrected to 15 percent excess oxygen averaged over a 1-hour period.

EMISSION OFFSETS

District Rule 207 requires that MLPP provide emission offsets, in the form of emission reductions or banked Emission Reduction Credits (ERC), for the project's emissions increases of NO_x, SO₂, VOC and PM₁₀. MLPP will also have some emissions reductions from the SCR modification and baseline emissions calculations for Units 6 and 7. Historical emissions at Units 6 and 7 are shown in AIR QUALITY Table 13. These emissions include air emissions during fuel oil firing, and do not include the emissions reductions mandated by District Rule 431.

AIR QUALITY Table 13
Moss Landing Historical Air Emissions (tons per year)

	NO _x	SO ₂	CO	VOC	PM ₁₀
Unit 6 and 7 Boilers	2,687.9	749.0	5,827.9	201.3	277

Sources: MLPP 1999a and District 2000a

Moss Landing Power Project has identified a number of offsets generated through emission reductions. A summary of the amounts of credits secured is shown in AIR QUALITY Table 14. These include banked ERCs from Units 1 – 5 (PG&E ERCs). Significant portions of the offset package are from the Spreckels Industrial Park located near Salinas.

AIR QUALITY Table 14
Emissions Offsets (tons per year)

	NOx	SO2	VOC	PM10
PG&E ^a	52.622	0.846	1.973	4.228
Firestone Tire and Rubber ^a	---	---	18	---
Estate of RE McDonald ^a	1.268	0.009	0.283	0.455
Firestone Business Park ^a	20.169	2.556	187.65	11.178
Spreckels Industrial Park ^a	254.61	35.73	33.93	213.948
Total	328.669	39.141	241.836	229.809
a. ERCs currently owned by the project applicant.				

Sources: District 2000a and District 2000b

The purchased ERCs and anticipated reductions of emissions from Units 6 and 7 baseline emissions are not adequate to offset the emissions from the new combined cycle and from Unit 6 and 7 operations at potentially higher capacity factors. The applicant has opted to combine the emissions from Units 6 and 7 and the new combined cycle units as a single facility cap, on an annual or quarterly basis. The cap will allow MLPP to operated its most efficient unit preferentially, or fire all the units for a finite time during any one year.

AIR QUALITY Tables 15 through 18 show the total facility quarterly emissions, less the baseline emissions at the Moss Landing facility that will require offsets, and the offsets provided. The baseline emissions are derived from historical capacities of Units 6 and 7, with the new emissions factors for NOx and SOx required by District Rule 431. Implementation of Rule 431 limits NOx emissions to 10 ppm from Units 6 and 7, requiring the installation of SCR. Additionally, Rule 431 prohibits fuel oil firing, hence the significant reduction in SO2 emissions. Offsets for the project's CO emissions are not required since the project will not cause any violations of any CO standard (as shown by modeling) and the area currently does not experience any violations of any CO standard.

AIR QUALITY Table 15
First Quarter Air Emissions and Offsets -Moss Landing Facility (lbs/qtr)

Emissions	NO_x	SO_x	VOC	CO	TSP/PM₁₀
Proposed Project	286,778	23,823	144,537	2,929,068	213,533
Baseline	236,978	13,594	105,164	3,110,479	145,322
Net Emissions Increase (Pounds per Quarter)	49,800	10,229	39,373	-181,411	68,211
Same Pollutant Offsets	191	5,595	39,373	None	68,211
Interpollutant Traded Offsets	49,609 VOC	4,634 NOx	None	None	52,860 NOx
Fully Offset?	Yes	Yes	Yes	Modeled Out of Offsets	Yes
Notes: NO _x offsets obtained = 57,685 lbs - 191 lbs used as offsets for NO _x on-site increase - 4,634 lbs used as SO _x offsets at 1:1 ratio - 52,860 lbs used as PM ₁₀ offsets at a 1:1 ratio VOC offsets obtained = 88,982 lbs - 39,373 lbs used as offsets for VOC on-site increase - 49,609 lbs used as offsets for NO _x at a 1:1 ratio					

Source: District 2000c

AIR QUALITY Table 16
Second Quarter Air Emissions and Offsets -Moss Landing Facility (lbs/qtr)

Emissions	NO_x	SO_x	VOC	CO	TSP/PM₁₀
Proposed Project	285,301	24,567	150,294	3,059,753	221,488
Baseline	135,271	7,760	60,030	1,868,633	82,953
Net Emissions Increase	150,030	16,807	90,264	1,191,120	138,535
Same Pollutant Offsets	132,662	16,807	90,264	None	71,203
Interpollutant Traded Offsets	17,368 VOC	None	None	None	58,193 NOx 9,139 SOx
Fully Offset?	Yes	Yes	Yes	Modeled Out of Offsets	Yes
Notes: NO _x offsets obtained = 190,855 lbs - 132,662 lbs used as offsets for NO _x on-site increase - 58,193 lbs used as PM ₁₀ offsets at a 1:1 ratio SO _x offsets obtained = 25,946 lbs - 16,807 lbs used as offsets for SO _x on-site increase - 9,139 lbs used as PM ₁₀ offsets at a 1:1 ratio VOC offsets obtained = 107,632 lbs - 90,264 lbs used as offsets for VOC on-site increase - 17,368 lbs used as offsets for NO _x at a 1:1 ratio					

Source: District 2000c

AIR QUALITY Table 17
Third Quarter Air Emissions and Offsets -Moss Landing Facility (lbs/qtr)

Emissions	NO_x	SO_x	VOC	CO	TSP/PM₁₀
Proposed Project	409,492	32,613	212,540	4,472,774	307,505
Baseline	267,291	15,333	118,616	3,175,195	163,911
Net Emissions Increase	142,201	17,280	93,924	1,297,579	143,594
Same Pollutant Offsets	127,544	17,280	93,924	None	
Interpollutant Traded Offsets	14,657 VOC	None	None	None	63,660 NO _x 8,683 SO _x
Fully Offset?	Yes	Yes	Yes	Modeled Out of Offsets	Yes
Notes: NO _x offsets obtained = 191,204 lbs - 127,544 lbs used as offsets for NO _x on-site increase - 63,660 lbs used as PM ₁₀ offsets at a 1:1 ratio SO _x offsets obtained = 25,963 lbs - 17,280 lbs used as offsets for SO _x on-site increase - 8,683 lbs used as PM ₁₀ offsets at a 1:1 ratio VOC offsets obtained = 108,582 lbs - 93,924 lbs used as offsets for VOC on-site increase - 14,657 lbs used as offsets for NO _x at a 1:1 ratio					

Source: District 2000c

AIR QUALITY Table 18
Fourth Quarter Air Emissions and Offsets -Moss Landing Facility (lbs/qtr)

Emissions	NO_x	SO_x	VOC	CO	TSP/PM₁₀
Proposed Project	336,584	29,468	188,206	3,920,385	273,879
Baseline	267,955	15,371	118,911	3,501,597	164,318
Net Emissions Increase	68,629	14,097	69,295	418,788	109,561
Same Pollutant Offsets	39,918	13,815	69,295	None	37,911
Interpollutant Traded Offsets	28,711 VOC	282 NO _x	None	None	71,650 NO _x
Fully Offset?	Yes	Yes	Yes	Modeled Out of Offsets	Yes
Notes: NO _x offsets obtained = 111,850 lbs - 39,918 lbs used as offsets for NO _x on-site increase - 282 lbs used as SO _x offsets at a 1:1 ratio - 71,650 lbs used as PM ₁₀ offsets at a 1:1 ratio VOC offsets obtained = 98,007 lbs - 69,295 lbs used as offsets for VOC on-site increase - 28,711 lbs used as offsets for NO _x at a 1:1 ratio					

Source: District 2000c

The District uses various interpollutant trading ratios in applying the available offsets and emission reductions to the quarterly pollutant liabilities, as shown in AIR QUALITY Tables 15 through 18. The use of interpollutant trading assumes that reducing a precursor pollutant can provide as much of an air quality benefit, often at some ratio other than 1:1, as emission reductions of directly emitted pollutants. In this case, NO_x and VOC, both precursors to ozone, are interpollutant traded at a 1 to 1 ratio. The PM₁₀ precursors of NO_x, SO_x and VOC are traded for each other and for PM₁₀ at a ratio of 1 to 1. Both of these interpollutant trading ratios are acceptable. Prior to the use of interpollutant trading by MLPP of the offsets, the offsets were discounted by the District's offset ratios of 1:1, 1.15:1 or 1.2:1, depending on attainment status and relative location (District 2000c).

ADEQUACY OF PROPOSED MITIGATION

CONSTRUCTION MITIGATION

Moss Landing Power Project will be required to comply with the proposed control measures for limiting fugitive dust emissions during construction. In addition, MLPP has proposed that they will require contractors to maintain their vehicles and equipment to limit exhaust emissions, limit delivery vehicle idling times, purchase on-road diesel fuel, and use engines that meet federal emission standards for construction equipment. Staff believes that additional measures are necessary to mitigate potential construction impacts (refer to staff proposed mitigation below).

OPERATIONS MITIGATION

EMISSION CONTROLS

Moss Landing Power Project has proposed to limit emissions from the GE combustion turbines to 2.5 ppm at 15 percent O₂ over a 1-hour rolling average. This is compliance with the ARB Power Plant Siting Guidelines and other projects being certified by the Energy Commission.

Modern combustion turbine power plants operate at very low air pollutant emission levels. The low emissions levels are possible with a combination of combustion and post-combustion emission control technologies. However, these technologies are sensitive to process upsets. The combustion turbines can experience unplanned events that caused the combustion turbine to switch from the very low-NO_x "pre-mix" mode to the diffusion mode of fuel combustion. The switch over is designed as a safety precaution, as the diffusion mode is more robust with respect to events such as pressure spikes in the fuel supply or faulty instrument readings.

While the unplanned switchovers, or "emission excursions," are expected to be infrequent events, the applicant and District have agreed upon permit language to define the events and limit their duration and air pollutant emissions. During the events, NO_x emissions can increase to levels above the 1-hour NO_x permit level of 2.5 ppm (based on a one-hour rolling average). The project owner is proposing that the events be defined as a 15 minute period and limited to no more than four

consecutive 15 minute periods, provided that the maximum NOx emissions do not exceed 30 ppm @15 % O2 over the one-hour average.

In addition, staff will require the project owner to implement procedures to respond to these events, which could include an immediate ramp down of the turbine, an increase of ammonia to the NOx post-combustion selective catalytic reduction system (SCR), and if appropriate or possible, water injection into the combustion turbine. These actions will reduce the duration and amount of emissions during the event. The total NOx emissions that occur during an excursion event are included in the daily, quarterly and annual totals. The daily, quarterly and annual limits are not being increased to accommodate these unplanned events because the applicant believes that only the 1-hour limit can be affected by the excursions. Short-term excursion periods shall not exceed 10 hours per rolling 12-month period.

A potential issue was the BACT level for CO emissions, and the BACT determination. MLPP proposed a BACT level of 9 ppm without the use of an oxidation catalyst. However, the ARB Guidelines define BACT for CO as 6 ppm, but does allow flexibility in areas that are attainment for CO. The District, which is attainment for CO, is requiring 9 ppm CO emission limit, @15 percent O2 over a 3 hour rolling average, and has not specified the use an oxidizing catalyst commonly used on combined cycle power plants to achieve CO emissions less than 10 ppm. The District performed a BACT analysis in the FDOC (District 2000c). Moss Landing Power Project proposes VOC concentrations of less than 3.5 ppm. Subsequent discussions with the District lowered the VOC emission limit to 2.0 ppm @15 percent O2 over a 1 hour rolling average. Again, this is without the specified use of an oxidizing catalyst, which can reduce further VOC emissions.

OFFSETS

With the implementation of District Rule 431, air emissions from Units 6 and 7 will be considerably less than historical emissions. However, with the operation of the four proposed combustion turbines and potential increases in operation of Units 6 and 7, total facility emissions of NOx, SO2, VOC, PM10 and CO will increase compared to Rule 431 implemented Unit 6 and 7 alone. The applicant purchased valid ERCs in the air basin, but these were not adequate to offset the potential increases from the facility. The applicant has chosen to operate the Moss Landing facility under a facility wide emission cap for these pollutants. Between the ERCs purchased and the baseline emissions for 6/7, the facility-wide emissions of NOx, VOC, PM10 and SOx are fully offset on a quarterly and annual basis. The modeling did not predict any significant air quality impacts from the facility's new potential air emissions, including CO, which, while capped, is not being offset. The modeling assumed a worst case scenario of all unit start-up and operation, and operation up to the quarterly and annual emissions caps.

STAFF PROPOSED MITIGATION

CONSTRUCTION MITIGATION

The cumulative modeling assessment for the combined cycle project, the SCR installation, the tank demolition, and other on-site construction activities have the

potential for causing PM10 air quality impacts. The most feasible mitigation measure to limit these emissions is to have fugitive dust measures in place. As stated above, MLPP has proposed a number of control measures that will minimize fugitive dust emissions. Staff proposes that prior to the commencement of construction, that MLPP provide a fugitive dust maintenance plan that specifically spells out the mitigation measures that MLPP will employ to limit fugitive dust during construction. The fugitive dust measures will be implemented for all construction and demolition activities at the Moss Landing site.

In order to address the PM10 emissions in equipment exhaust, MLPP has proposed that they will require contractors to maintain their vehicles and equipment to limit exhaust emissions, limit delivery vehicle idling times, purchase on-road diesel fuel, and use engines that meet federal emission standards for construction equipment. Staff is recommending the use of diesel fuel be limited to no greater than 50 ppm sulfur to achieve further reductions in PM10 and PM10 precursors from construction equipment exhaust, and to allow the use of oxidizing soot filters. Staff proposes that prior to the commencement of construction, that MLPP provide a construction equipment maintenance plan that specifically spells out the mitigation measures that MLPP will employ to limit construction equipment emissions. It is anticipated that the equipment exhaust mitigation measures be implemented for all construction and demolition activities at the Moss Landing site.

The current California standard for diesel fuel limits sulfur to 500 ppm. California diesel averages 130 ppm sulfur, with some fuel distribution terminals selling 50 ppm or less sulfur diesel fuel. The ARB predicted as much as a 25 percent reduction of directly emitted PM10 and an 80 percent reduction of SO2, a PM10 precursor, with the implementation of the 500 ppm sulfur diesel standard (ARB 1988). Staff believes that the use of 50 ppm sulfur diesel instead of 130 ppm diesel will reduce SO2 emission by as much as 60 percent, and reduce PM10 between 5 percent (Clean 2000) and 10 percent. Reducing sulfur in diesel fuel helps extend engine life by reducing corrosive wear. Additionally, lower sulfur diesel ensures a greater compatibility with post-combustion catalysts and soot filters(ARB 1998).

The oxidizing soot filter is a device that replaces the muffler of the construction equipment. It reduces CO and hydrocarbon (VOC) emissions by approximately 80-90% and PM10 emissions by approximately 90-99%. This technology has several operational constraints and the Conditions of Certification will be written to give the on-site engineer the latitude to remove the oxidizing soot filters when it is determined that they are not appropriate for the specific construction or equipment application.

OPERATIONS MITIGATION

Staff is not proposing any additional operational mitigation measures to the project beyond those limits in the District's FDOC conditions of certification.

COMPLIANCE WITH LORS

FEDERAL

The District's NSR permit process, which generated the FDOC (District 2000), is considered by the USEPA equivalent to a Prevention of Significant Deterioration (PSD) permit process. The District is not doing a separate PSD permit review beyond the evaluation in the FDOC. The District will also issue a Title V permit for the facility upon operation of the project.

STATE

The project, with the anticipated surrender of the full mitigation (offsets) required in the Final Determination of Compliance from the Monterey Bay Unified APCD complies with Section 41700 of the California State Health and Safety Code.

LOCAL

The District has issued a Final Determination of Compliance (District 2000b). The District has provided conditions of certification in the FDOC, which are included below.

CONCLUSIONS AND RECOMMENDATIONS

The Moss Landing Power Plant project's air quality impacts from directly emitted PM10 and of the ozone precursor emissions of NOx and VOC and PM10 precursors of NOx, VOC and SO2 could be significant if left unmitigated. MLPP will reduce operational emissions to the extent feasible, operate the entire facility under annual and quarterly emissions caps, and will provide emission offsets for NOx, VOC, SO2 and PM10 emissions increases, reducing any potential impacts to a level of insignificance.

Based on the District's Final Determination of Compliance, staff concludes that the project will comply with the District's Rules and Regulations. Staff recommends certification of the MLPP project with the adoption of the District's FDOC and staff proposed conditions of certification. Staff proposed conditions of certification reduce potential PM10 impacts from on-site construction activity to the extent feasible.

CONDITIONS OF CERTIFICATION

DETERMINATION OF COMPLIANCE CONDITIONS

CONDITIONS PRIOR TO COMBUSTING FUEL:

AQ-1 Duke Energy Moss Landing LLC shall submit all design criteria and specifications on the gas turbine generators, the heat recovery steam generators, the steam turbine generator, the condensers, the SCR system,

the ammonia injection system, and the CEM systems, and receive District approval prior to installation.

Verification: The project owner shall provide all design criteria and specifications on the gas turbine generators, the heat recovery steam generators, the steam turbine generator, the condensers, the SCR system, the ammonia injection system, and the CEM systems for review to the CEC CPM and the District, and shall receive approval from the District prior to installation.

AQ-2 Pursuant to the requirements of District Rule 218, Duke Energy Moss Landing LLC shall apply for and receive a revised Title V permit for the Moss Landing Power Plant prior to combusting fuel in the Gas Turbines.

Verification: Verification: The project owner shall provide copies Title V permits to the CEC CPM no later than 30 days after the receipt of the permits from the District.

AQ-3 District-approved continuous emission monitors shall be installed, calibrated, and operational prior to first firing the Gas Turbines. After commissioning of the Gas Turbines, the detection range of these continuous emission monitors shall be adjusted as necessary to accurately measure the normal range of CO and NOx emission concentrations. The type, specifications, and location of these monitors shall be subject to District review and approval.

Verification: The project owner shall provide copies of the design drawings of the continuous emission monitor design detail to the CEC CPM at least 30 days prior to commencement of construction of the HRSG and the stack.

AQ-4 Duke Energy Moss Landing LLC shall submit a plan to the District at least 30 days prior to the first firing of the Gas Turbines. This plan shall describe the procedures to be followed during the commissioning of the Gas Turbines, the HRSGs, and the Steam Turbines. The plan shall include a description of each commissioning activity, the anticipated duration of each activity in hours, and the purpose of the activity. The activities described shall include, but not be limited to, the tuning of the dry-low-NOx combustors, the installation and operation of the SCR systems, and the installation, calibration, and testing of the CO and NOx continuous emission monitors, and any activities requiring the firing of the Gas Turbines without abatement by the SCR Systems. The plan shall include a quantification of emissions during commissioning and use of a HRSG chemical cleaning boiler.

Verification: The project owner shall provide a Commissioning Plan for approval to the CEC CPM and the District at least 60 days prior to first firing of the combustion turbines.

AQ-5 No later than seven (7) days prior to combusting fuel in the Gas Turbines, Duke Energy Moss Landing LLC shall notify the District and arrange for an inspection of the equipment.

Verification: The project owner shall provide copies of the notification to the CEC CPM.

AQ-6 Duke Energy Moss Landing LLC shall surrender the offsets identified in this evaluation prior to combusting fuel in the Gas Turbines.

Verification: The project owner shall provide copies of the Emission Reduction Credits (ERCs) to the District and the CEC CPM prior to combustion fuel in the gas turbines.

TURBINE COMMISSIONING CONDITIONS:

AQ-7 Duke Energy Moss Landing LLC shall minimize emissions from the Gas Turbines to the maximum extent possible during the commissioning period.

Verification: See Condition AQ-4.

AQ-8 At the earliest feasible opportunity in accordance with the recommendation of the equipment manufacture, the combustors of the Gas Turbines shall be tuned to minimize emissions.

Verification: See Condition AQ-4.

AQ-9 At the earliest feasible opportunity in accordance with the recommendations of the equipment manufactures, the SCR Systems shall be installed, adjusted, and operated to minimize the emissions of nitrogen oxides and ammonia from the Gas Turbines.

Verification: See Condition AQ-4.

AQ-10 The total number of firing hours of each Gas Turbine without abatement of nitrogen oxide emissions by the SCR System shall not exceed 300 hours during the commissioning period. Such operation of the Gas Turbine without abatement shall be limited to discrete commissioning activities that can only be properly executed without the SCR System in place. Upon completion of these activities, Duke Energy Moss Landing LLC shall provide written notice to the District and the unused balance of the 300 firing hours without abatement will expire.

Verification: See Condition AQ-4.

AQ-11 The total mass emissions of nitrogen oxides, carbon monoxide, volatile organic compounds, PM10, and sulfur dioxide that are emitted from each Gas Turbine during the commissioning period shall accrue towards the quarterly emission limits specified in Condition 25.

Verification: See Condition AQ-4.

AQ-12 At the end of the commissioning period, Duke Energy Moss Landing LLC shall conduct a District and CEC approved source test to determine compliance with Condition 15 (start-up and shutdown limits), and the written test results of the performance tests shall be provided to the District and the CEC within thirty (30) days after the testing. The source test shall determine NO_x, CO, and VOC emissions during start-up and shutdown of the Gas Turbines. The source test for each Gas Turbine shall include a minimum of three start-up and three shutdown periods. A complete test protocol shall be submitted to the District no later than thirty (30) days prior to testing, and notification to the District at least ten (10) days prior to the actual date of testing shall be provided so that a District observer may be present. Changes to the test date made subsequent to the initial ten day notification may be communicated by telephone or other acceptable means no less than forty-eight (48) hours prior to the new test date.

Verification: A complete test protocol shall be submitted for approval to the District and the CEC CPM no later than thirty (30) days prior to testing, and notification to the District and the CEC CPM at least ten (10) days prior to the actual date of testing shall be provided so that District or Energy Commission observers may be present. Changes to the test date made subsequent to the initial ten day notification may be communicated by telephone or other acceptable means no less than forty-eight (48) hours prior to the new test date.

GAS TURBINE CONDITIONS:

AQ-13 The heat input rate to each Gas Turbine shall not exceed 1,870 MMBtu/hr.

Verification: See AQ-38 and 39.

AQ-14 The maximum daily combined emissions from the Gas Turbines, including start-ups and shutdowns, shall not exceed the following limits:

<u>Pollutant</u>	<u>Lbs/Day</u>
Oxides of Nitrogen (NO _x)	2,589.4
Carbon Monoxide (CO)	17,301.8
Particulate Matter <10 microns (PM ₁₀)	864.0
Volatile Organic Compounds (VOC)	620.0
Ammonia (NH ₃)	1,224.0
Sulfur Dioxide (SO ₂)	124.0

Verification: See AQ-38 and 39.

AQ-15 The pollutant mass emission rates in the exhaust discharged to the atmosphere from each Gas Turbine shall not exceed the following limits:

Pollutant	Lbs/Hour	Lbs/Day
Oxides of Nitrogen (NO _x)	17.23	413.52
Carbon Monoxide (CO)	37.76	906.24
Particulate Matter <10 microns (PM ₁₀)	9.00	216.00

Pollutant	Lbs/Hour	Lbs/Day
Volatile Organic Compounds (VOC)	4.79	114.96
Ammonia (NH ₃)	12.75	306.0
Sulfur Dioxide (SO ₂)	1.30	31.2

Protocol: These limits shall not apply during start-up, which is not to exceed four (4) hours. SCR catalytic controls and good engineering practices shall be used to the fullest extent practical during start-up to minimize pollutant emissions.

Verification: Verification: See AQ-38 and 39.

AQ-16 The pollutant concentrations discharged to the atmosphere from each Gas Turbine shall not exceed the following limits, calculated at 15 percent O₂ on a one-hour rolling average unless otherwise noted:

Pollutant	Concentration (ppm)
Oxides of Nitrogen (as NO ₂)	2.5
Carbon Monoxide (CO)	6.0 (rolling three-hour average)
Ammonia (NH ₃)	5.0 (3-60 minute averages.)

Protocol: These limits shall not apply during start-up, which is not to exceed four (4) hours, or shutdown, which is not to exceed two (2) hours. SCR catalytic controls and good engineering practices shall be used to the fullest extent practical during start-up to minimize pollutant emissions.

Verification: See AQ-38 and 39.

AQ-17 The pollutant emission rates discharged to atmosphere from each Gas Turbine during a start-up shall not exceed the following limits. These limits apply to any start-up period, which shall not exceed four (4) hours. Emissions of oxides of nitrogen (as NO₂) shall not exceed 160 lbs/hour during any start-up.

Pollutant	Lbs/Start-Up	
Oxides of Nitrogen (as NO ₂)	320	
Carbon Monoxide (CO)	3,608.0	
Volatile Organic Compounds (as CH ₄)	64.0	

Verification: See AQ-38 and 39.

AQ-18 Compliance with the hourly NO_x emission limits specified in Conditions 15 and 16 shall not be required during short-term excursions of less than 10 hours per rolling 12-month period.

Short-term excursions are defined as 15-minute periods designated by Duke Energy Moss Landing LLC that are a direct result of a diffusion mode

switchover, not to exceed four consecutive 15-minute periods, when the 15-minute average NO_x concentration exceeds 2.5 ppm corrected to 15% O₂.

The maximum 1-hour average NO_x concentration for periods that include short-term excursions shall not exceed 30 ppmvd corrected to 15% O₂. All emissions during short-term excursions shall be included in all calculations of daily, quarterly, and annual mass emissions required by this permit.

Verification: The project owner shall submit for review and approval procedures to respond to these events, which could include an immediate ramp down of the turbine, an increase of ammonia to the NO_x post-combustion selective catalytic reduction system (SCR), and if appropriate, water injection into the combustion turbine. These actions will reduce the duration and amount of emissions during the event. The procedure shall discuss how the project CEM system will measure or estimate NO_x emissions during these excursions. The procedure shall be submitted to the CEC CPM 90 days after commercial operation.

AQ-19 CEM Systems shall be installed and operated on each of the Gas Turbines. These systems shall be designed to continuously record the measured gaseous concentrations, and calculate and continuously monitor and record the CO, CO₂ or O₂, and NO_x concentrations corrected to fifteen (15) percent oxygen (O₂) on a dry basis.

The equipment installed for the continuous monitoring of CO shall be maintained and operated in accordance with 40 CFR Part 60 Appendix F, and the equipment installed for the continuous monitoring of CO₂ or O₂ and NO_x shall be maintained and operated in accordance with 40 CFR Parts 72 and 75.

For periods of missing CO data, CO hourly values shall be substituted from valid hourly average data from the previous thirty (30) unit operating days, excluding periods of startup and shutdown. The CO data shall be substituted based on equivalent incremental load ranges.

Verification: See AQ-38 and 39.

AQ-20 Within sixty (60) days after the commissioning of the Gas Turbines, a Relative Accuracy Test Audit (RATA) must be performed on the CEMS in accordance with 40 CFR Part 60 Appendix B Performance Specifications and a performance test shall be performed, and the written test results of the performance tests shall be provided to the District within thirty (30) days after testing. A complete test protocol shall be submitted to the District no later than thirty (30) days prior to testing, and notification to the District at least ten (10) days prior to the actual date of testing shall be provided so that a District observer may be present. Changes to the test date made subsequent to the initial ten day notification may be communicated by telephone or other acceptable means no less than forty-eight (48) hours prior to the new test date.

The performance tests shall include those parameters specified in the approved test protocol, and shall at a minimum include the following:

- a. Oxides of Nitrogen (as NO₂): ppmv dry at 15% O₂ and lbm/hr.
 - b. Carbon Monoxide: ppmv dry at 15% O₂ and lbm/hr.
 - c. Volatile Organic Compounds (as CH₄): ppmv dry at 15% O₂ and lbm/hr.
 - d. Ammonia (NH₃): ppmv dry at 15% O₂ and lbm/hr
- and the following process parameters:
- e. Natural gas consumption.
 - f. Turbine load in megawatts.
 - g. Stack gas flow rate (SDCFM) calculated according to procedures in EPA method 19, and % CO₂.

Verification: See AQ-41.

BOILER 6-1 AND 7-1 CONDITIONS:

AQ-21 The heat input rate to each Boiler shall not exceed 7,048 MMBtu/hr.

Verification: See 38 and 39.

AQ-19 Effective December 31, 2000, the pollutant mass emission rates in the exhaust discharged to the atmosphere from one Boiler shall not exceed the following limits:

Pollutant	Lbs/Hour	Lbs/Day
Oxides of Nitrogen (NO _x)	85.6	2,054
Carbon Monoxide (CO)	862.7	20,704.8
Particulate Matter <10 microns (PM ₁₀)	52.5	1,260.0
Volatile Organic Compounds (VOC)	38.0	912.0
Ammonia (NH ₃)	31.6	758.4
Sulfur Dioxide (SO ₂)	4.9	117.6

Protocol: These limits shall not apply during start-up, which is not to exceed twelve (12) hours, or shutdown, which is not to exceed eight (8) hours. SCR catalytic controls and good engineering practices shall be used to the fullest extent practical during start-up to minimize pollutant emissions.

Verification: See AQ-38 and 39.

AQ-23 Effective December 31, 2000, the pollutant concentrations discharged to the atmosphere from one Boiler shall not exceed the following limits, based upon a one (1) hour rolling average (unless otherwise noted) calculated at 3 percent O₂ on a dry basis:

Pollutant	Concentration (ppm)
Oxides of Nitrogen (as NO ₂)	10
Carbon Monoxide (CO)	400 (steady state compliance test based on a 60 consecutive minute avg.) 1000 (one hour clock-hour avg.)
Ammonia (NH ₃)	10 (3-60 minute avg.)

Protocol: These limits shall not apply during start-up, which is not to exceed twelve (12) hours, or shutdown, which is not to exceed eight (8) hours. SCR catalytic controls and good engineering practices shall be used to the fullest extent practical during start-up to minimize pollutant emissions.

Verification: See AQ-38 and 39.

AQ-24 During the period of December 31, 2000 through December 31, 2001, when both Units 6-1 and 7-1 are available, Duke Energy Moss Landing LLC shall preferentially operate the unit subject to the emission limits contained in Condition 20, such that its MW-hours equal or exceed the MW-hours of the unit not subject to the requirements of Condition 20; provided that such preferential operation shall not impair the provision of reliable electric service.

Verification: See AQ-38 and 39.

AQ-25 Effective December 31, 2001, the pollutant mass emission rates in the exhaust discharged to the atmosphere from each Boiler shall not exceed the following limits:

Pollutant	Lbs/Hour	Lbs/Day
Oxides of Nitrogen (NO _x)	85.6	2,054
Carbon Monoxide (CO)	862.7	20,704.8
Particulate Matter <10 microns (PM ₁₀)	52.5	1,260.0
Volatile Organic Compounds (VOC)	38.0	912.0
Ammonia (NH ₃)	31.6	758.4
Sulfur Dioxide (SO ₂)	4.9	117.6

Protocol: These limits shall not apply during start-up, which is not to exceed four(4) hours. SCR catalytic controls and good engineering practices shall be used to the fullest extent practical during start-up to minimize pollutant emissions.

Verification: See AQ-38 and 39.

AQ-26 Effective December 31, 2001, the pollutant concentrations discharged to the atmosphere from each Boiler shall not exceed the following limits, based upon a one (1) hour rolling average (unless otherwise noted) calculated at 3 percent O₂ on a dry basis:

Pollutant	Concentration (ppm)
Oxides of Nitrogen (as NO ₂)	10
Carbon Monoxide (CO)	400 (steady state compliance test based on a 60 consecutive minute avg.) 1000 (one hour clock-hour avg.)
Ammonia (NH ₃)	10 (3-60 minute avg.)

Protocol: These limits shall not apply during start-up, which is not to exceed twelve (12) hours, or shutdown, which is not to exceed eight (8) hours. SCR catalytic controls and good engineering practices shall be used to the fullest extent practical during start-up to minimize pollutant emissions.

Verification: Verification: See AQ-38 and 39.

AQ-27 CEM Systems shall be installed and operated on each of the Boilers. These systems shall be designed to continuously record the measured gaseous concentrations, and calculate and continuously monitor and record the CO, CO₂ or O₂, and NO_x concentrations corrected to three (3) percent oxygen (O₂) on a dry basis.

The equipment installed for the continuous monitoring of CO shall be maintained and operated in accordance with 40 CFR Part 60 Appendix F, and the equipment installed for the continuous monitoring of CO₂ or O₂ and NO_x shall be maintained and operated in accordance with 40 CFR Parts 72 and 75.

For periods of missing CO data, CO hourly values shall be substituted from valid hourly average data from the previous thirty (30) unit operating days, excluding periods of startup and shutdown. The CO data shall be substituted based on equivalent incremental load ranges.

Verification: See AQ-38 and 39.

GENERAL CONDITIONS:

AQ-28 Cumulative emissions, including emissions generated during Start-ups and Shutdowns, from all power generation equipment at the Moss Landing Power Plant shall not exceed the following quarterly limits:

Pollutant	Pounds Of Emissions Per Calendar Quarter			
	First	Second	Third	Fourth
NO _x (as NO ₂)	286,778	285,301	409,492	336,584
Sox	23,823	24,567	32,613	29,468
VOC	144,537	150,294	212,540	188,206
PM ₁₀	213,533	221,488	307,505	273,879
CO	2,929,068	3,059,753	4,472,774	3,920,385

Verification: See AQ-38 and 39.

AQ-29 This equipment shall be abated by a properly operated and maintained Selective Catalytic Reduction System.

Verification: See AQ-38 and 39.

AQ-30 Duke Energy Moss Landing LLC shall demonstrate compliance by using properly operated and maintained continuous emission monitors (during all hours of operation including equipment Start-up and Shutdown periods, except for periods of CEM maintenance performed in accordance with District requirements) for all of the following parameters:

- a. Firing hours and Fuel Flow Rates.
- b. Oxygen (O₂) Concentrations, Nitrogen Oxide (NO_x) Concentrations, and Carbon Monoxide (CO) Concentrations.
- c. Ammonia Injection Rates.

Duke Energy Moss Landing LLC shall record all of the above parameters every 15 minutes (excluding normal calibration periods) and shall summarize all of the above parameters for each clock hour. For each calendar day, Duke Energy Moss Landing LLC shall calculate and record the total Firing Hours, the average hourly Fuel Flow Rates, and pollutant emission concentrations.

Duke Energy Moss Landing LLC shall use the parameters measured above and District-approved calculation methods to calculate the following parameters:

- d. Heat Input Rate.
- e. Corrected NO_x concentrations, NO_x mass emissions (as NO₂), corrected CO concentrations, and CO mass emissions.

For each source, Duke Energy Moss Landing LLC shall record the parameters specified in d. and e. of this Condition every 15 minutes (excluding normal calibration periods). As specified below, Duke Energy Moss Landing LLC shall calculate and record the following data:

- f. Total Heat Input Rate for every clock hour.
- g. The NO_x mass emissions (as NO₂), and corrected NO_x emission concentrations for every clock hour.
- h. The CO mass emissions, and corrected CO emission concentrations for every rolling three-hour period.
- i. On an hourly basis, the cumulative total NO_x mass emission (as NO₂) and the cumulative total CO mass emissions.
- j. For each calendar day, the cumulative total NO_x mass emission (as NO₂) and the cumulative total CO mass emissions.
- k. For each calendar quarter, the cumulative total NO_x mass emission (as NO₂) and the cumulative total CO mass emissions.

- I. For each calendar year, the cumulative total NO_x mass emission (as NO₂) and the cumulative total CO mass emissions.

Verification: See AQ-38 and 39.

AQ-31 Duke Energy Moss Landing LLC shall calculate and record on a daily basis, the Volatile Organic Compound (VOC) mass emissions, Fine Particulate Matter (PM₁₀) mass emissions, Sulfur Dioxide (SO₂) mass emissions, and Ammonia (NH₃) mass emissions from each source. Duke Energy Moss Landing LLC shall use the actual heat input rates, actual Start-up times, actual Shutdown times, and District-approved emission factors to calculate these emissions. The calculated emissions shall be presented as follows:

- a. For each calendar day, VOC, PM₁₀, SO₂, and NH₃ mass emissions shall be summarized for each source.
- b. On a daily basis, the cumulative total VOC, PM₁₀, SO₂ and NH₃ mass emissions shall be summarized for each calendar quarter and for the calendar year.

Verification: See AQ-38 and 39.

AQ-32 Instrumentation must be operated to measure the SCR catalyst inlet temperature and pressure differential across the SCR catalyst.

Verification: AQ-38 and 39.

AQ-33 Duke Energy Moss Landing LLC shall submit to the Air Pollution Control District a written report each month which shall include:

- a. time intervals, date, and magnitude of excess emissions;
- b. nature and cause of the excess emission, and corrective actions taken;
- c. time and date of each period during which the continuous monitoring system was inoperative, except for zero and span checks, and the nature of system repairs and adjustments; and
- d. a negative declaration when no excess emissions occurred.

Verification: See AQ-38 and 39.

AQ-34 Duke Energy Moss Landing LLC shall monitor and report SO₂ emissions in accordance with 40 CFR Parts 72 and 75.

Verification: See AQ-38 and 39.

AQ-35 Starting January 1, 2000, Duke Energy Moss Landing LLC shall hold Sulfur Dioxide Allowances in the compliance subaccounts not less than the total annual emissions of sulfur dioxide for the previous calendar year.

Verification: See AQ-38 and 39.

AQ-36 The equipment installed for the continuous monitoring of CO₂ or O₂ and NO_x shall be maintained and operated in accordance with 40 CFR Parts 72 and 75.

Verification: See AQ-38 and 39.

AQ-37 A written Quality Assurance program must be established in accordance with 40 CFR Part 75, Appendix B and 40 CFR Part 60, Appendix F which includes, but is not limited to: procedures for daily calibration testing, quarterly linearity and leak testing, record keeping and reporting implementation, and relative accuracy testing.

Verification: See AQ-38 and 39.

AQ-38 Pursuant to Title IV, Part 75, Section 75.50, and Rule 431, Section 4.3, permanent records shall be maintained for a period of five years after creation. The records at a minimum shall include all items specified in Section 75.50 and in Rule 431.

Verification: The records shall be maintained for a period of five years after creation and be available for inspection by representatives of the District, Air Resources Board, the CEC CPM and other appropriate agencies.

AQ-39 Pursuant to Title IV, Part 75, Section 75.64, quarterly reports shall be submitted to the District within 30 days following the end of the calendar quarter. The reports must be in electronic format and at a minimum must include all items listed in Section 75.64.

Verification: Copies of the quarterly reports shall be submitted to the District and the CEC CPM within 30 days following the end of the calendar quarter. At a minimum, the quarterly report must include all items listed in Section 75.64.

AQ-40 Duke Energy Moss Landing LLC shall cause monthly (or less frequently if deemed appropriate by the Air Pollution Control Officer) testing to be performed to verify compliance with the Ammonia (NH₃) slip limit. Duke Energy Moss Landing LLC shall conduct this testing in accordance with the collection method specified in BAAQMD Source Test Procedure ST-1B and the analysis specified in EPA method 350.3.

Verification: See AQ-38 and 39.

AQ-41 Annual performance tests shall be conducted in accordance with the Monterey Bay Unified Air Pollution Control District test procedures during the third quarter of each year, and the written results of the performance tests shall be provided to the District within thirty (30) days after testing. A testing protocol shall be submitted to the District no later than thirty (30) days prior to the testing, and notification to the District at least ten (10) days prior to the actual date of testing shall be provided so that a District observer may be present. Changes to the test date made subsequent to the initial ten day

notification may be communicated by telephone or other acceptable means no less than forty-eight (48) hours prior to the new test date.

If the testing cannot be completed during the third quarter of the year due to the equipment being nonoperational or due to the power generation requirements of the grid being such that a unit would be unable to operate at greater than 50% load, the testing can be delayed, such that the testing be completed during the fourth quarter of the following year provided that Duke Energy Moss Landing LLC notify the District that they will be unable to meet the third quarter testing requirement as soon as it becomes known, but in no event later than September 15.

Verification: The written results of the performance tests shall be provided to the District within thirty (30) days after testing. A testing protocol shall be submitted to the District no later than thirty (30) days prior to the testing, and notification to the District at least ten (10) days prior to the actual date of testing shall be provided so that a District or CEC observer be present. Changes to the test date made subsequent to the initial ten day notification may be communicated by telephone or other acceptable means no less than forty-eight (48) hours prior to the new test date.

AQ-42 Duke Energy Moss Landing LLC shall report all breakdowns which results in the inability to comply with any emission standard or requirement contained on this permit to the Air Pollution Control Officer (APCO) within 1 hour of the occurrence, this one hour period may be extended up to six hours for good cause by the APCO. The APCO may elect to take no enforcement action if Duke Energy Moss Landing LLC demonstrates to the APCO's satisfaction that a breakdown condition exists.

The estimated time for repair of the breakdown shall be supplied to the APCO within 24 hours of the occurrence and a written report shall be supplied to the APCO with 5 days after the occurrence has been corrected. This report shall include at a minimum:

- a. a statement that the condition or failure has been corrected and the date of correction; and
- b. a description of the reasons for the occurrence; and
- c. a description of the corrective measures undertaken and/or to be undertaken to avoid such an occurrence in the future; and
- d. an estimate of the emissions caused by the condition or failure.

Verification: See AQ-38 and 39.

AQ-43 Duke Energy Moss Landing LLC shall provide adequate stack sampling ports and platforms to enable the performance of source testing. The location and configuration of the stack sampling ports shall be subject to District review and approval.

Verification: The project owner shall submit design drawings of the location and configuration of the stack sampling ports to District and CEC CPM review and approval at least 60 prior to the start of construction of the HRSG and stack.

AQ-44 No emissions shall constitute a public nuisance.

Verification: See AQ-38 and 39.

AQ-45 No air contaminant shall be discharged into the atmosphere for a period or periods aggregating more than three (3) minutes in any one (1) hour which is as dark or darker than Ringelmann 1 or equivalent 20% opacity.

Verification: See AQ-38 and 39.

AQ-46 Duke Energy Moss Landing LLC shall fund the operation of the "Stationary Source" percentage of the District's Salinas air monitoring station.

Verification: See AQ-38 and 39.

AQ-47 Any representative of the Monterey Bay Unified Air Pollution Control District authorized by the Air Pollution Control Officer shall be permitted, pursuant to the authority contained in Section 41510 of the California Health and Safety Code:

- a. to enter upon the premises where the source is located or in which any records are required to be kept under the terms and conditions of the Authority to Construct;
- b. to have access to and copy any records required to be kept under the terms and conditions of this Authority to Construct;
- c. to inspect any equipment, operation, or process described or required in this Authority to Construct; and,
- d. to sample emissions from the source.

Verification: Representatives of the District, CEC CPM, the Air Resources Board, or other appropriate agencies shall have the authority to enter the premises to witness source tests, review and copy records, inspect equipment and sample emissions for the sources.

CONDITIONS OF CERTIFICATION numbers AQ-48 through AQ-49 are reserved for future use.

ENERGY COMMISSION STAFF CONDITIONS

CONDITIONS OF CERTIFICATION – CONSTRUCTION

These conditions are not included in the District's Determination of Compliance.

For the purposes of these conditions, the following definitions apply:

(1) ACTIVE OPERATIONS shall mean any activity capable of generating fugitive dust, including, but not limited to, earth-moving activities, construction/demolition activities, or heavy- and light-duty vehicular movement.

(2) CHEMICAL STABILIZERS mean any non-toxic chemical dust suppressant which must not be used if prohibited for use by the Regional Water Quality Control Boards, the California Air Resources Board, the U.S. Environmental Protection Agency (U.S. EPA), or any applicable law, rule or regulation; and should meet any specifications, criteria, or tests required by any federal, state, or local water agency. Unless otherwise indicated, the use of a non-toxic chemical stabilizer shall be of sufficient concentration and application frequency to maintain a stabilized surface.

(3) CONSTRUCTION/DEMOLITION ACTIVITIES are any on-site mechanical activities preparatory to or related to the building, alteration, rehabilitation, demolition or improvement of property, including, but not limited to the following activities; grading, excavation, loading, crushing, cutting, planing, shaping or ground breaking.

(4) DISTURBED SURFACE AREA means a portion of the earth's surface which has been physically moved, uncovered, destabilized, or otherwise modified from its undisturbed natural soil condition, thereby increasing the potential for emission of fugitive dust.

(5) DUST SUPPRESSANTS are water, hygroscopic materials, or non-toxic chemical stabilizers used as a treatment material to reduce fugitive dust emissions.

(6) EARTH-MOVING ACTIVITIES shall include, but not be limited to, grading, earth cutting and filling operations, loading or unloading of dirt or bulk materials, adding to or removing from open storage piles of bulk materials, landfill operations, or soil mulching.

(7) FUGITIVE DUST means any solid particulate matter that becomes airborne, other than that emitted from an exhaust stack, directly or indirectly as a result of the activities of man.

(8) INACTIVE DISTURBED SURFACE AREA means any disturbed surface area upon which active operations have not occurred or are not expected to occur for a period of ten consecutive days.

(9) STABILIZED SURFACE means:

(A) any disturbed surface area or open storage pile which is resistant to wind-driven fugitive dust;

(B) any unpaved road surface in which any fugitive dust plume emanating from vehicular traffic does not exceed 20 percent opacity.

(10) VISIBLE ROADWAY DUST means any sand, soil, dirt, or other solid particulate matter which is visible upon paved road surfaces and which can be removed by a vacuum sweeper or a broom sweeper under normal operating conditions.

AQ-50 The project owner shall implement a CEC CPM approved fugitive Dust Control Plan.

Protocol: The plan shall include the following:

1. A description of each of the active operation(s) which may result in the generation of fugitive dust;
2. An identification of all sources of fugitive dust (e.g., earth-moving, storage piles, vehicular traffic, etc).
3. A description of the control measures to be applied to each of the sources of dust emissions identified above (including those required in AQ-47 below). The description must be sufficiently detailed to demonstrate that the applicable best available control measure(s) will be utilized and/or installed during all periods of active operations;
4. In the event that there are special technical (e.g., non-economic) circumstances, including safety, which prevent the use of at least one of the required control measures for any of the sources identified, a justification statement must be provided to explain the reason(s) why the required control measures cannot be implemented.

Verification: Not later than sixty (60) days prior to the commencement of construction, the project owner shall submit the plan to the CEC CPM for review and approval. The project owner shall maintain daily records to document the specific actions taken pursuant to the plan. A summary of the monthly activities shall be submitted to the CPM via the Monthly Compliance Report.

AQ-51 During the construction phase of the project, the project owner shall:

1. Prevent or remove within one hour the track-out of bulk material onto public paved roadways as a result of their operations, or take at least one of the actions listed in Table 2 (attached) to prevent the track-out of bulk material onto public paved roadways as a result of their operations and remove such material at anytime track-out extends for a cumulative distance of greater than 50 feet on to any paved public road during active operations;
2. Install and use a track-out control device to prevent the track-out of bulk material from areas containing soils requiring corrective to other areas within the project construction site and laydown area;
3. Minimize fugitive particulate emissions from vehicular traffic on paved roads and paved parking lots on the construction site by vacuum mechanical sweeping or water flushing of the road surface to remove buildup of loose material. The project owner shall inspect on a daily basis the conditions of the paved roads and parking lots to determine the need for mechanical sweeping or water flushing.

Verification: The project owner shall maintain a daily log during the construction phase of the project indicating: 1) the manner in which compliance with this condition is achieved and 2) the date and time when the inspection of paved roads and parking lots occurs and the date and time(s) when the cleaning operation occurs. The logs shall be made available to the California Energy Commission CPM upon request.

AQ-52 At any time when fugitive dust from MLPP project construction is visible in the atmosphere beyond the property line, the project owner will identify the source of the fugitive dust and implement one or more of the appropriate control measures specified in Table 3 (attached)

Verification: The project owner will maintain a daily log recording the dates and times that measures in Table 3 (attached) have been implemented and make them available to the California Energy Commission CPM upon request.

AQ-53 The project owner shall implement an approved Construction Equipment Plan. The Plan shall identify how the project owner will ensure that all heavy equipment, that includes, but is not limited to, bulldozers, backhoes, compactors, loaders, motor graders and trenchers, and cranes, dump trucks and other heavy duty construction related trucks, used on-site by construction contractors and subcontractors:

- a. are properly maintained;
- b. use 50 ppm or less sulfur diesel fuel;
- c. limit idling times; and
- d. meet federal emission standards for construction equipment.

Verification: Not later than sixty (60) days prior to the commencement of construction, the project owner shall submit the plan to the California Energy Commission CPM for review and approval. The project owner shall maintain records to document the specific actions taken pursuant to the plan. A summary of the monthly activities shall be submitted to the California Energy Commission CPM via the Monthly Compliance Report.

AQ-54 The project owner shall ensure that all heavy earthmoving equipment including, but not limited to, bulldozers, backhoes, compactors, loaders, motor graders and trenchers, and cranes, dump trucks and other heavy duty construction related trucks, have been properly maintained and the engines tuned to the engine manufacturer's specifications. The project owner shall also install oxidizing soot filters on all suitable construction equipment used either on the power plant construction site or associated linear construction sites. Suitability is to be determined by an independent California Licensed Mechanical Engineer who will stamp and submit for approval an initial and all subsequent Suitability Reports as necessary containing at a minimum the following:

Initial Suitability Report:

- The initial suitability report shall be submitted to the CPM for approval 60 days prior to breaking ground on the project site.
- A list of all fuel burning, construction related equipment used,
- a determination of the suitability of each piece of equipment to work appropriately with an oxidizing soot filter,

- if a piece of equipment is determined to be suitable, a statement by the independent California Licensed Mechanical Engineer that the oxidizing soot filter has been installed and is functioning properly, and
- if a piece of equipment is determined to be unsuitable, an explanation by the independent California Licensed Mechanical Engineer as to the cause of this determination.

Subsequent Suitability Reports

- If a piece of construction related equipment is subsequently determined to be unsuitable for an oxidizing soot filter after such installation has occurred, the filter may be removed immediately. However notification must be sent to the CPM for approval containing an explanation for the change in suitability within 10 days.
- Changes in suitability are restricted to three explanations which must be identified in any subsequent suitability report.
 1. The oxidizing soot filter is reducing normal availability of the construction equipment due to increased downtime, and/or power output due to increased back pressure by 20% or more.
 2. The oxidizing soot filter is causing or reasonably expected to cause significant damage to the construction equipment engine.
 3. The oxidizing soot filter is causing or reasonably expected to cause a significant risk to nearby workers or the public.

Verification: The project owner shall submit to the CPM, via the Monthly Compliance Report, documentation, which demonstrates that the contractor's heavy earthmoving equipment is properly maintained and the engines are tuned to the manufacturer's specifications. The project owner shall maintain all records on the site for six months following the start of commercial operation. The project owner will submit to the CPM for approval, the initial suitability report stamped by an independent California Licensed Mechanical Engineer, 60 days prior to breaking ground on the project site. The project owner will submit to the CPM for approval, subsequent suitability reports as required, stamped by an independent California Licensed Mechanical Engineer no later than 10 working day following a change in the suitability status of any construction equipment.

TABLE 1
BEST AVAILABLE FUGITIVE DUST CONTROL MEASURES

FUGITIVE DUST SOURCE CATEGORY	CONTROL ACTIONS
Earth-moving (except construction cutting and filling areas, and mining operations)	Maintain soil moisture content at a minimum of 12 percent, as determined by ASTM method D-2216, or other equivalent method approved by the CEC CPM. Two soil moisture evaluations must be conducted during the first three hours of active operations during a calendar day, and two such evaluations each subsequent four-hour period of active operations; OR For any earth-moving which is more than 100 feet from all property lines, conduct watering as necessary to prevent visible dust emissions from exceeding 100 feet in length in any direction.
Earth-moving: Construction fill areas:	Maintain soil moisture content at a minimum of 12 percent, as determined by ASTM method D-2216, or other equivalent method approved by the CEC CPM. For areas which have an optimum moisture content for compaction of less than 12 percent, as determined by ASTM Method 1557 or other equivalent method approved by the CEC CPM, complete the compaction process as expeditiously as possible after achieving at least 70 percent of the optimum soil moisture content. Two soil moisture evaluations must be conducted during the first three hours of active operations during a calendar day, and two such evaluations during each subsequent four-hour period of active operations.
Earth-moving: Construction cut areas and mining operations:	Conduct watering as necessary to prevent visible emissions from extending more than 100 feet beyond the active cut or mining area unless the area is inaccessible to watering vehicles due to slope conditions or other safety factors.
Disturbed surface areas (except completed grading areas)	Apply dust suppression in sufficient quantity and frequency to maintain a stabilized surface. Any areas which cannot be stabilized, as evidenced by wind driven fugitive dust must have an application of water at least twice per day to at least 80 percent of the unstabilized area.
Disturbed surface areas: Completed grading areas	Apply chemical stabilizers within five working days of grading completion; OR Take actions (3a) or (3c) specified for inactive disturbed surface areas.
Inactive disturbed surface areas	Apply water to at least 80 percent of all inactive disturbed surface areas on a daily basis when there is evidence of wind driven fugitive dust, excluding any areas which are inaccessible to watering vehicles due to excessive slope or other safety conditions; OR Apply dust suppressants in sufficient quantity and frequency to maintain a stabilized surface; OR Establish a vegetative ground cover within 21 days after active operations have ceased. Ground cover must be of sufficient density to expose less than 30 percent of unstabilized ground within 90 days of planting, and at all times thereafter; OR Utilize any combination of control actions (3a), (3b), and (3c) such that, in total, these actions apply to all inactive disturbed surface areas.

FUGITIVE DUST SOURCE CATEGORY	CONTROL ACTIONS
Unpaved Roads	Water all roads used for any vehicular traffic at least once per every two hours of active operations; OR Water all roads used for any vehicular traffic once daily and restrict vehicle speeds to 15 miles per hour; OR Apply a chemical stabilizer to all unpaved road surfaces in sufficient quantity and frequency to maintain a stabilized surface.
Open storage piles	Apply chemical stabilizers; OR Apply water to at least 80 percent of the surface area of all open storage piles on a daily basis when there is evidence of wind driven fugitive dust; OR Install temporary coverings; OR Install a three-sided enclosure with walls with no more than 50 percent porosity which extend, at a minimum, to the top of the pile.
ALL CATEGORIES	Any other control measures approved by the CEC CPM as equivalent to the methods specified in Table 1 may be used.

TABLE 2
TRACK-OUT CONTROL OPTIONS

(1)	Pave or apply chemical stabilization at sufficient concentration and frequency to maintain a stabilized surface starting from the point of intersection with the public paved surface, and extending for a centerline distance of at least 100 feet and a width of at least 20 feet.
(2)	Pave from the point of intersection with the public paved road surface, and extending for a centerline distance of at least 25 feet and a width of at least 20 feet, and install a track-out control device immediately adjacent to the paved surface such that exiting vehicles do not travel on any unpaved road surface after passing through the track-out control device.
(3)	Any other control measures approved by the CEC CPM as equivalent to the methods specified in Table 2 may be used.

TABLE 3
CONTROL MEASURES FOR WIND CONDITIONS EXCEEDING 25 MPH

FUGITIVE DUST SOURCE CATEGORY	CONTROL MEASURES
Earth-moving	Cease all active operations; OR Apply water to soil not more than 15 minutes prior to moving such soil.
Disturbed surface areas	On the last day of active operations prior to a weekend, holiday, or any other period when active operations will not occur for not more than four consecutive days: apply water with a mixture of chemical stabilizer diluted to not less than 1/20 of the concentration required to maintain a stabilized surface for a period of six months; OR Apply chemical stabilizers prior to wind event; OR Apply water to all unstabilized disturbed areas 3 times per day. If there is any evidence of wind driven fugitive dust, watering frequency is increased to a minimum of four times per day; OR Take the actions specified in Table 1, Item (3c); OR
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FUGITIVE DUST SOURCE CATEGORY	CONTROL MEASURES
	Utilize any combination of control actions (1B), (2B), and (3B) such that, in total, these actions apply to all disturbed surface areas.
Unpaved roads	Apply chemical stabilizers prior to wind event; OR
	Apply water twice [once] per hour during active operation; OR
	Stop all vehicular traffic.
Open storage piles	Apply water twice [once] per hour; OR
	Install temporary coverings.
Paved road track-out	Cover all haul vehicles; OR
	Comply with the vehicle freeboard requirements of Section 23114 of the California Vehicle Code for both public and private roads.
All Categories	Any other control measures approved by the Executive Officer and the U.S. EPA as equivalent to the methods specified in Table 3 may be used.

REFERENCES

- ARB 1988. Air Resources Board, Stationary Source Division, Proposed Adoption of Regulations Limiting the Sulfur Content and Aromatic Hydrocarbon Content of Motor Vehicle Diesel Fuel, October 1988.
- ARB 1992. California Air Resources Board, "Sources and Control of Nitrogen Emissions", Sacramento, August. p. 38
- ARB, 1992-1997. California Air Quality Data, Annual and Quarterly Summaries, Aerometric Division, Sacramento.
- ARB 1996. Air Resources Board. "Second Triennial Review of the Assessment of the Impacts of Transported Pollutants on Ozone Concentrations in California", October 1996.
- ARB 1998 Air Resource Board. "Proposed Amendments to the Designation Criteria and Amendments to the Area Designations for State Ambient Air Quality Standards", August 1998.
- B&W 2000. Babcock & Wilcox Technical Paper – B&W's NO_x Reduction Systems and Equipment at Moss Landing Power Plant, ICAC NO_x Forum, March 23-24, 2000, Washington, D.C.
- Clean 2000. Clean Diesel Technologies, Test Results Confirm that a Platinum/Cerium Diesel Fuel Combustion Catalyst Equals or Exceeds Low Sulfur Diesel Fuel in Reduction Particulate Emissions from a Heavy Duty Diesel Engine, News Bulletin, January 10, 2000.
- District 1999a. 1998 Report on Attainment of the California Particulate Matter Standards in the Monterey Bay Region, Monterey Bay Unified Air Pollution Control District, January 1999.
- District 1999b. Letter from Mr. Mike Sewell, Monterey Bay Unified Air Pollution Control District to Mr. Paul Richins, CEC, July 7, 1999.
- District 2000a. Preliminary Determination of Compliance, Application Numbers 9837-9840, Monterey Bay Unified Air Pollution Control District, January 7, 2000.
- District 2000b. Personal conversation with Mr. Mike Sewell of the Monterey Bay Unified Air Pollution Control District, January 21, 2000.
- District 2000c. Final Determination of Compliance, Application Numbers 9837-9840, Monterey Bay Unified Air Pollution Control District, May 12, 2000.

- EPRI 1990. "Combustion Turbine NOx Control News." Electric Power Research Institute. RP 2936, Summer 1990, Issue 3.
- Moss 1996. Moss Landing Air Monitoring Program Final Report, The Moss Landing Air Monitoring Program Advisory Committee, May 1996.
- MLPP 1999a. Application for Certification, Moss Landing Power Plant (99-AFC-4), May 7, 1999.
- MLPP 1999b. Moss Landing Power Plant Project (99-AFC-4) Data Adequacy Responses 1999.
- MLPP 1999c. Moss Landing Power Plant Project (99-AFC-4) Supplementary AFC Filing, November 22, 1999.
- MLPP 2000a. Moss Landing Power Plant Project (99-AFC-4) Letter to Ms. Janet Brennan, January 5, 2000.
- MLPP 2000b. Moss Landing Power Plant Project (99-AFC-4) Construction Emissions and Impact Analysis Moss Land Power Plant.
- MLPP 2000c. Moss Landing Power Plant Project (99-AFC-4) Email from Gary Rubenstein to Matt Layton, May 26, 2000.

LAND USE

Testimony of Eric Knight

INTRODUCTION

The Moss Landing Power Plant Project (MLPPP) involves the construction and operation of a new 1,060 MW combined cycle power plant on the site of the existing Moss Landing Power Plant in Monterey County. The land use analysis of the MLPPP focuses on two main issues: the project's consistency with local land use plans, ordinances and policies; and the project's compatibility with existing and planned land uses. In general, an electric generation project and its related facilities can be incompatible with existing and planned land uses when it creates unmitigated noise, dust, public health hazard or nuisance, traffic, or visual impacts or when it unduly restricts existing or planned future uses.

LAWS, ORDINANCES, REGULATIONS AND STANDARDS

STATE

CALIFORNIA COASTAL ACT OF 1976 (PUB. RESOURCES CODE §30000 ET SEQ.)

The California Coastal Act establishes a comprehensive scheme to govern land use planning along the entire California coast. The Coastal Act sets forth general policies (§30200 et seq.) which govern the California Coastal Commission's review of permit applications and local plans. Specific to energy facilities, the Coastal Act requires that the Coastal Commission designate specific locations within the coastal zone where the establishment of a thermal power plant subject to the Warren-Alquist Act could "prevent the achievement of the objectives" of the Coastal Act (§30413(b)). Pursuant to section 30500, each local government lying within the coastal zone is required to prepare a local coastal program (LCP) for management of that portion of the coastal zone within its jurisdiction. Once the Coastal Commission certifies a LCP, the authority to issue coastal development permits for development within the coastal zone is delegated to the local jurisdiction (§30519(a)). Notwithstanding section 30519(a), section 30600(a) of the Coastal Act specifies that a proponent must obtain a coastal development permit for any development "other than a facility subject to the provisions of Section 25500" (i.e., a thermal power plant or related facility subject to the Warren-Alquist Act).

WARREN-ALQUIST ACT (PUB. RESOURCES CODE § 25500 ET. SEQ.)

Pursuant to section 25529 of the Warren-Alquist Act, the Energy Commission shall require public access to coastal resources as a condition of certification of a facility proposed in the coastal zone. Section 25529 provides in full:

When a facility is proposed to be located in the coastal zone or any other area with recreational, scenic, or historic value, the [Energy] commission shall require, as a condition of certification of any facility contained in the application, that an area be established for public use, as determined by the commission. Lands within such

area shall be acquired and maintained by the applicant and shall be available for public access and use, subject to restrictions required for security and public safety. The applicant may dedicate such public use zone to any local agency agreeing to operate or maintain it for the benefit of the public. If no local agency agrees to operate or maintain the public use zone for the benefit of the public, the applicant may dedicate such zone to the state. The [Energy] commission shall also require that any facility to be located along the coast or shoreline of any major body of water be set back from the shoreline to permit reasonable public use and to protect scenic and aesthetic values.

LOCAL

Staff reviewed various Monterey County land-use planning documents relevant to the MLPPP. A discussion of the project's conformity with applicable goals, policies, standards and regulations from each of these planning documents can be found in the subsection entitled COMPLIANCE WITH LAWS, ORDINANCES, REGULATIONS AND STANDARDS.

MONTEREY COUNTY GENERAL PLAN

The Monterey County General Plan contains countywide goals, objectives, policies, and the countywide land use plan. The General Plan is organized into four components: natural resources, environmental constraints, human resources, and county development. Each of these components addresses subject matter required for one or more of the mandatory general plan elements (land use, circulation, housing, open space, safety, conservation and noise). The General Plan also addresses parks and recreation, public services and facilities, historic preservation, demographics, socioeconomics, and air and water quality. In regard to industrial land use, it is the goal of Monterey County "to encourage industrial development which maintains the quality of the environment and is economically beneficial to the area, located in close proximity to major transportation routes, and which is compatible with surrounding land uses" (Monterey County, 1982a).

NORTH COUNTY LAND USE PLAN (INCLUDING THE MOSS LANDING COMMUNITY PLAN)

The coastal zone of Monterey County is divided into four planning areas: North County, Big Sur, Carmel, and Del Monte Forest. The MLPPP is located in North County, which includes the unincorporated area of the coastal zone from the Marina City limits to the Santa Cruz County boundary at the Pajaro River, and inland nearly to Highway 101 to include as much as possible of the Elkhorn Slough watershed. The North County Land Use Plan, certified by the California Coastal Commission in 1982, serves as the Local Coastal Program for North County. The plan identifies policies regarding natural resources management, the public service system, land use and development, and public access to the shoreline.

A primary objective of the North County Land Use Plan "is to plan for appropriate levels of land use and development in the coastal zone while protecting coastal resources and providing or maintaining coastal access and recreation opportunities." The plan seeks to maintain the rural character of North County, which is characterized by its predominant agricultural, low density residential and

open space uses. In regard to industrial development, the plan states that “the only industrial facilities particularly appropriate for North County are ones which are coast ... dependent” (Monterey County, 1982b, pp. 47-48).

Incorporated into the North County Land Use Plan is the Moss Landing Community Plan. The plan includes policies pertaining to land use and development, and the protection of the character and visual resources of the Moss Landing community. According to the Moss Landing Community Plan, industries located in Moss Landing are generally dependent on a location near the coastline for their existence. The plan states that these “coastal-dependent” industries, such as the existing Moss Landing Power Plant, are given priority by the California Coastal Act over other land uses on or near the coast. It is the intent of the Moss Landing Community Plan to encourage coastal-dependent industrial facilities to expand within existing sites, and to allow for the reasonable growth of these industries, consistent with the protection of the area’s natural resources (Monterey County, 1982b, p. 62).

MONTEREY COUNTY COASTAL IMPLEMENTATION PLAN (PART 1 AND PART 2)

Part 1 of the Monterey County Coastal Implementation Plan (Title 20, Zoning Ordinance) implements the Monterey County Local Coastal Program. Known as the Coastal Zoning Ordinance, this plan establishes zoning districts, regulations and permit processes for the unincorporated area of the County within the Coastal Zone. Each coastal zoning district specifies the uses that are allowed or may be allowed subject to discretionary permits. Electric power plants are among the principal uses allowed within the Heavy Industrial (Coastal Zone) Zoning District. No building permit, grading permit, or discretionary land use permit may be approved if it is found to be inconsistent with the Monterey County Local Coastal Program (Monterey County, 1995, pp. 1-3, and 118-120).

Part 2 of the Monterey County Coastal Implementation Plan, Regulations for Development in the North County Land Use Plan Area establishes regulations, standards, and procedures to fully implement the policies of the North County Land Use Plan. These regulations apply only to parcels within the North County Coastal Zone. Section 20.144.140 of the plan contains development standards for land use. The intent of this section is to ensure that future development in North County will be consistent with the protection of the area’s significant human and cultural resources, agricultural uses, natural resources, and water quality. Also applicable to the proposed project is section 20.144.160, Moss Landing Community Development Standards. The intent of this section is to provide standards that allow the orderly development of the Moss Landing Community and the perpetuation of its coastal-dependent industries (Monterey County, 1988, pp. 1, 83 and 113).

SETTING

The Moss Landing Power Plant is located in the community of Moss Landing, about 12 miles northwest of Salinas. The power plant is situated across Highway 1 from Moss Landing Harbor in an area that includes ocean-dependent industrial facilities,

agricultural lands, visitor-serving retail, limited residential, recreational beaches, and tidal wetlands. In North County, industrial uses are concentrated in Moss Landing (Monterey County, 1982a). In addition to the existing Moss Landing Power Plant, these industrial uses include fish and shellfish processing, boat building, and a magnesia and refractory brick factory.

SITE AND VICINITY DESCRIPTION

The existing Moss Landing Power Plant (constructed by PG&E and in operation since 1950) is a 239-acre industrial complex that includes seven electric generation units, ten exhaust stacks, 19 fuel oil storage tanks, and various warehouse and office buildings. The MLPPP consists of replacing the existing electric power generation Units 1-5 (retired in 1995) with two 530 MW, natural gas-fired, combined cycle units. The project also includes the removal of the eight 225-foot tall stacks that were previously used for Units 1-5. Four 145-foot tall exhaust stacks would be constructed in association with the new generation units. No new offsite linear facilities (electrical transmission lines, natural gas pipelines, water pipelines) would be constructed to serve the MLPPP (Duke Energy 1999a, AFC page 6.9-1).

In addition to the project, several other activities would take place onsite as part of Duke Energy's modernization of the Moss Landing Power Plant. These activities include the demolition and removal of 19 fuel oil storage tanks that once fed Units 1-7, and the installation of SCR (air emission control technology) to existing Units 6 and 7, a pair of natural gas-fired steam boiler units built in the 1960s. Monterey County is the lead agency for environmental review of the tank farm demolition and SCR installation. Please refer to the **PROJECT DESCRIPTION** of the Final Staff Assessment (FSA) for a more detailed discussion of the modernization activities occurring at the Moss Landing Power Plant.

The Moss Landing Power Plant site is located at the intersection of Highway 1 and Dolan Road. The site is designated Heavy Industrial (Coast Dependent) by the North County Land Use Plan and the Moss Landing Community Plan. Land-use designations are depicted on **LAND USE Figure 1**. The site is zoned Heavy Industrial: HI (Coastal Zone [CZ]). Zoning designations are shown on **LAND USE Figure 2**.

LAND USE Figure 3 shows existing land uses in the vicinity of the Moss Landing Power Plant site. Immediately north and adjacent to the power plant site is the 143-acre PG&E Moss Landing Switchyard. Zoning is HI (CZ). Further north is Elkhorn Slough and wetlands. To the west and across Highway 1 is Moss Landing Harbor. The harbor provides facilities for about 600 commercial and pleasure boats (Duke Energy 1999a, AFC page 6.13-7). Commercial fishing industries, including canneries and fish processing companies, boat storage and repair facilities, marine supply stores, and other related facilities are located on Moss Landing Island (Monterey County, 1982a). Zoning is Light Industrial: LI (CZ). Immediately south of the site and across Dolan Road is the National Refractories magnesia and refractory brick facility. Zoning is HI (CZ). To the east and adjacent to the East Tank Farm portion of the site is the Dolan Industrial Park. Zoning is LI (CZ).

RESIDENTIAL

The nearest residence is located adjacent to the PG&E switchyard approximately 1,500 feet north of the existing Moss Landing Power Plant (Duke Energy 1999a, AFC page 6.12-3). Zoning is Agricultural Conservation: AC (CZ). The nearest cluster of residential uses is located on Potrero Road about one mile southwest of the power plant site (Duke Energy 1999a, AFC page 6.9-1). This residential area is separated from the site by the National Refractories industrial facility, Highway 1, Moro Cojo Slough, and a commercial area along Moss Landing Road. It is zoned Medium Density Residential (1 to 4 units per gross acre): MDR/4 (CZ). Another single residence is located south of the site near the intersection of Moss Landing Road and Highway 1. A small group of residences are located to the east within one-quarter mile of the East Tank Farm, off of Elkhorn Road. These residences are separated from the tank farm by agricultural uses (Duke Energy 1999a, AFC page 6.9-1). Zoning is Rural Density Residential: RDR (CZ). Development density in this area ranges from 1 unit on 20 acres to a maximum of 1 unit per 5 acres. Nearby residential uses also include boats moored in Moss Landing Harbor and residents living on the Island.

AGRICULTURE

Prime farmland is located approximately 1.7 miles from the Moss Landing Power Plant. Farmland of statewide importance is approximately 1.3 miles, and unique farmland is approximately 1.6 miles from the project site. There are no prime farmlands, farmlands of statewide importance, or unique farmlands located at the project site or within a one-quarter mile radius of the site (Duke Energy 1999a, AFC page 6.4-2).

Agricultural activity immediately to the north, and south (across Dolan Road) of the Middle and East Tank Farm portion of the Moss Landing Power Plant site is primarily cattle grazing (Duke Energy 1999a, AFC page 6.9-4). The Calcagno Dairy Farm and several residences are located in the agricultural area to the north. Zoning designations include Coastal Agriculture Preserve (CAP [CZ]), and AC (CZ). Agricultural land to the south of Moro Cojo Slough and within one mile of the Moss Landing Power Plant site is planted in irrigated row crops, such as artichokes and brussel sprouts (Duke Energy 1999a, AFC page 6.9-4). Zoning is AC (CZ) and CAP (CZ).

LAND USE Figure 1
Land Use Designations within Project Study Area

LAND USE Figure 2
Zoning Districts within One Mile of the Project Site

LAND USE Figure 3
Existing Land Uses within One Mile of the Project Site

IMPACTS

According to Appendix G of the Guidelines to the California Environmental Quality Act (CEQA), a project may have a significant effect on land use if the project would:

- Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project adopted for the purpose of avoiding or mitigating an environmental effect.
- Disrupt or divide the physical arrangement of an established community.
- Convert Prime Farmland, Farmland of Statewide Importance, or Unique Farmland to non-agricultural use.

A project may also have a significant impact on land use if it would create unmitigated noise, dust, public health hazard or nuisance, traffic, or visual impacts or when it precludes or unduly restricts existing or planned future uses.

COMPLIANCE WITH LAWS, ORDINANCES, REGULATIONS AND STANDARDS

Public Resources Code section 25525 states that the Energy Commission shall not certify any facility when it finds “that the facility does not conform with any applicable state, local, or regional standards, ordinances, or laws, unless the commission determines that such facility is required for public convenience and necessity and that there are not more prudent and feasible means of achieving such public convenience and necessity.” When determining if a project is in conformance with state, local or regional ordinances or regulations, the Energy Commission typically meets and consults with the applicable agencies to determine conformity and, when necessary, “to attempt to correct or eliminate any noncompliance” (Pub. Resources Code, § 25523(d)(1)). The laws, ordinances, regulations, standards (LORS) and policies applicable to the project have been analyzed below to determine the extent to which the MLPPP is consistent or at variance with each requirement or standard.

CALIFORNIA COASTAL ACT

Pursuant to section 30413(b) of the California Coastal Act, the Coastal Commission shall “designate those specific locations within the coastal zone where the location of a facility as defined in Section 25110¹ would prevent the achievement of the objectives of this division; provided, however, that specific locations that are presently used for such facilities and reasonable expansion thereof shall not be so designated.” Staff reviewed the Coastal Commission’s most recent designation (dated September 1978, revised 1984) of areas unsuitable for thermal power plants. With respect to Moss Landing, the report notes that “a large area for potential expansion of PG&E’s Moss Landing Power Plant is not designated [as unsuitable for a thermal power plant]” (CCC 1985, p. 58). The MLPPP would be located entirely within the existing Moss Landing Power Plant site. Consequently, the

¹ “Facility” is defined as a thermal power plant or electric transmission line regulated according to provisions of Division 15 of the Public Resources Code (i.e., Warren-Alquist Act).

project is consistent with Coastal Commission policy that prefers onsite expansion of existing power plants to development of new power plants in currently undeveloped areas of the coastal zone (CCC 1985, p. 9).

Notwithstanding the above, the Coastal Act does not preclude local governments from designating areas of the coastal zone as unsuitable for power plants. Section 30005(a) reads as follows:

No provision of this division is a limitation . . . on the power of a city or county to adopt and enforce additional regulations, not in conflict with this act, imposing further conditions, restrictions, or limitations with respect to any land or water use or other activity which might adversely affect the resources of the coastal zone.

WARREN-ALQUIST ACT

As part of their AFC, Duke Energy did not include provision of public access to coastal resources as part of the project. On May 24, 2000, staff held a workshop with representatives of Duke Energy, the California Coastal Commission, and Monterey County to create a plan for developing public access to coastal resources pursuant to Public Resources Code Section 25529.

At the workshop, Duke Energy agreed to provide the following to promote public access in the vicinity of the MLPPP: 1) dedication of an easement and funding for the planning, design, and construction of a boardwalk to and along Moss Landing Beach; 2) funding for an environmental assessment of coastal access in the context of an Elkhorn Slough Circle Trail, and funding for ongoing maintenance of that trail system if deemed ecologically appropriate or an alternative access point if that site is deemed inappropriate; and 3) dedication of an easement within Duke's ownership westerly of Highway 1 for a proposed trail identified in the North County Land Use Plan. Items 1 and 2 are discussed below and item 3 is addressed in the discussion on the project's compliance with the North County Land Use Plan.

Numerous makeshift trails currently provide informal and unofficial public access to the beach on Moss Landing "Island." However, the use of these trails can disturb native vegetation, which has a destabilizing effect on the sand dunes in the area (Bowen, 2000). At the workshop, Duke Energy agreed to provide \$100,000 to Monterey County for the purpose of improving ecologically appropriate coastal access on Moss Landing Island. In addition, Duke Energy agreed to provide Monterey County with an easement over a portion of Duke Energy's ownership on the Island that lies above the project's outfall structure. The funds the applicant would provide would be used for the planning, design, and construction of a boardwalk within the newly created easement from Sandholdt Road toward the beach, as well as a boardwalk along the adjacent beach area. At the workshop, Monterey County agreed it would serve as the lead agency for the planning and construction of the boardwalk. This mitigation measure for improving public access in the vicinity of the MLPPP has been incorporated by staff as proposed condition of certification **LAND-1**.

At the workshop the concept of a “Elkhorn Slough Circle Trail” was discussed. This would be an approximately 12-mile footpath that would completely encircle the Elkhorn Slough wetland and offer ecologically appropriate viewing opportunities of the wildlife in the area. At the workshop, Duke Energy agreed to provide \$60,000 to carry out an environmental assessment of a proposed Elkhorn Slough Circle Trail, specifically to determine how additional visitors can be accommodated in certain areas of the slough without compromising adopted resource and species protection objectives for the Slough. If the environmental assessment determines that additional visitors can be accommodated by means of the proposed Elkhorn Slough Circle Trail, or portions thereof, Duke Energy agreed to provide a \$250,000 endowment, the proceeds of which would fund ongoing maintenance of the trail. If the environmental assessment concludes that public access would compromise adopted resource and species protection objectives for the Slough, the proceeds from the \$250,000 endowment would go to fund an alternative coastal access program(s) in the vicinity of the MLPPP. This mitigation measure for improving public access in the vicinity of the MLPPP has been incorporated by staff as proposed condition of certification **LAND-2**.

MONTEREY COUNTY GENERAL PLAN

CHAPTER IV: AREA DEVELOPMENT

This chapter of the Monterey County General Plan addresses the subject of land use. The following policies are applicable to the MLPPP:

General Land Use

Goal 26 states that it is Monterey County’s goal to promote appropriate and orderly growth and development while protecting desirable existing land uses.

Policy 26.1.6 encourages development that preserves and enhances the scenic qualities of the County.

Policy 26.1.20 states that all exterior lighting shall be unobtrusive and constructed or located so that only the intended area is illuminated, long range visibility is reduced, and off-site glare is fully controlled.

The Moss Landing Community Plan notes that coastal-dependent industries, such as the Moss Landing Power Plant, are given priority by the Coastal Act over other developments on or near the coastline. The Plan reads: “Existing coastal-dependent industries in Moss Landing have local, regional, statewide, and in some cases, national significance. Accordingly, the county shall encourage maximum use and efficiency of these facilities, and allow for their reasonable long-term growth consistent with maintaining the environmental quality and character of the Moss Landing Community and its natural resources” (Monterey County 1982, p. 80). The MLPPP, which would be located entirely within the existing Moss Landing Power Plant site, would represent “orderly growth and development” of a “desirable” existing land use. In the **VISUAL RESOURCES** section of the FSA, staff concludes that the MLPPP would add a noticeable but not considerable increment to the existing industrial character of the Moss Landing area. With mitigation, the MLPPP

would not cause a significant adverse impact on the visual resources of the area. For instance, staff has proposed a condition of certification (**VIS-3**) to control off-site lighting and glare. Thus, the MLPPP is consistent with Goal 26 and General Plan Policies 26.1.6 and 26.1.20.

Residential

Policy 27.3.1 discourages new land use activities that are potential nuisances and/or hazards within and in close proximity to residential areas.

The nearest residential area is located on Potrero Road about one mile southwest of the power plant site (Duke Energy 1999a, AFC page 6.9-1). Staff has found that operation of the MLPPP would not cause significant adverse impacts to nearby residential uses. Please see the **NOISE, AIR QUALITY, PUBLIC HEALTH, TRAFFIC AND TRANSPORTATION**, and **VISUAL RESOURCES** sections of the FSA.

Industrial

Policy 29.1.1 encourages industrial development that is compatible with the environment.

Policy 29.1.2 requires that industrial areas be as compact as possible.

Policy 29.1.3 states that in order to maintain a healthy environment, Monterey County shall allow only those industries that do not violate the County's environmental quality standards.

The new power generation units would be placed where fuel oil tanks 3, 4 and 10 are currently located. These tanks would be removed during the initial phase of the tank farm demolition (Duke Energy 1999a, AFC page 2-13). Removal of the 19 fuel oil tanks would significantly reduce the overall footprint of the Moss Landing Power Plant. The MLPPP and other modernization activities are consistent with Policy 29.1.2, which requires compact industrial areas. There are no County-specific standards for use in evaluating industrial development proposals (Carney, 2000). With mitigation, staff does not expect significant adverse impacts to air quality or cultural resources. Please refer to the **AIR QUALITY** and **CULTURAL RESOURCES** sections of the FSA. Staff is evaluating the potential impacts on water and biological resources (i.e., effects of the thermal plume on Monterey Bay, potential for impingement/entrainment of marine life in the cooling water intake structure). Staff is in the process of developing a mitigation package that would reduce significant adverse impacts to biological resources and water resources to a less than significant level. The technical areas of **BIOLOGICAL RESOURCES** and **SOIL AND WATER RESOURCES** will be published as Part 3 of the FSA on June 6, 2000.

Agricultural

Goal 30 states that it is Monterey County's goal to protect all viable farmlands designated as prime, of statewide importance, unique, or of local importance from conversion to and encroachment of non-agricultural uses.

Policy 30.0.1 states that the County shall prevent non-agricultural uses that could interfere with the potential of normal agricultural operations on viable farmlands.

The MLPPP would be located entirely within the existing boundaries of the Moss Landing Power Plant. No new offsite linear facilities (e.g., electrical transmission lines) would be constructed to serve the project. Thus, the MLPPP would not convert agricultural land to non-agricultural uses or interfere with agricultural operations on adjacent farmlands.

Policy 30.0.2 requires that permanent, well-defined buffer areas are provided as part of new non-agricultural development proposals that are located adjacent to agricultural land uses on viable farmlands.

The new power plant would be located where fuel oil tanks 3, 4 and 10 are currently located. Existing power plant facilities bound this area on the west, north and east. To the south and across Dolan Road, is the National Refractories industrial site. Thus, the MLPPP would not be located adjacent to agricultural land uses, and consequently, would not require buffer areas.

Open Space

Goal 34 states that it is Monterey County's goal to encourage the provision of open space lands as part of all types of development including industrial.

Policy 34.1.1 encourages clustering of all types of development, where appropriate, in order to allow for a portion of each project site to be dedicated as permanent open space.

Policy 34.1.3 states that wherever possible, open space lands provided as part of a development project should be integrated into an areawide open space network.

Policy 34.1.4 states that open space areas should be used as a buffer between land uses of different types and/or intensities.

The permit for the tank farm demolition will require that Duke Energy restore the area currently occupied by the Middle and East Tank Farms to its natural state. However, the County would not apply an open space overlay to the existing heavy industrial zoning designation, which could place a constraint on future expansion of the Moss Landing Power Plant (Carney, 2000). Thus, after the phased demolition of the tank farm is complete, this area of the power plant site would serve as an open space and buffer area, until such time as the facility expands.

Watershed Areas

Goal 35 states that it is Monterey County's goal to recognize the significance of watershed areas in protecting and maintaining the County's natural resources and rural character.

Policy 35.1.1 states that the County shall ensure that land uses in and surrounding critical watershed areas will not compromise the important resource value of these areas.

With mitigation, staff does not expect storm water discharges from the project to have significant adverse effects on the watershed (please see the **SOIL AND WATER RESOURCES** section of the FSA).

Policy 35.1.2 states that any development in critical watershed areas shall be designed, sited, and constructed in a manner which minimizes negative effects on the watershed.

The MLPPP has been designed to utilize the existing intake structure for Units 1-5 located in Moss Landing Harbor and the existing discharge structure for Units 6 and 7 located in Monterey Bay. The project would not discharge cooling water into Elkhorn Slough (Duke Energy 1999a, AFC page 1-2 and 1-10). Please see the **SOIL AND WATER RESOURCES** section of the FSA for mitigation to control soil erosion during project construction.

NORTH COUNTY LAND USE PLAN

CHAPTER 4, LAND USE AND DEVELOPMENT

Key Policy 4.3.4 states that all future development within the North County coastal zone must be clearly consistent with the protection of the area's significant human and cultural resources, agriculture, natural resources, and water quality.

With mitigation, staff has found that the MLPPP would not cause significant adverse impacts to the visual resources and cultural resources of the area (please see the **VISUAL RESOURCES** and **CULTURAL RESOURCES** sections of the FSA). Staff is in the process of developing a mitigation package that would reduce impacts to biological and water resources to an insignificant level. The technical areas of **BIOLOGICAL RESOURCES** and **SOIL AND WATER RESOURCES** will be published as Part 3 of the FSA on June 6, 2000.

Policy 4.3.5.1 states that the rural character of the coastal area of North County with its predominant agricultural, low density residential and open space land uses shall be retained. Prime and productive agricultural soils shall be protected for agricultural use.

The MLPPP would be located entirely within the existing boundaries of the Moss Landing Power Plant and requires no new offsite linear facilities (e.g., electrical transmission lines). Thus, the MLPPP would not convert agricultural land to a non-agricultural use.

Policy 4.3.5.6 states that the only industrial facilities appropriate for the area are coastal-dependent industries that do not demand large quantities of fresh water and contribute low levels of air and water pollution. Industries not compatible with the high air quality needed for the protection of agriculture shall be restricted.

The MLPPP, like the existing Moss Landing Power Plant, would use seawater for cooling purposes, thereby minimizing its reliance on fresh water. Emissions from operation of the MLPPP are not expected to exceed the primary standards established for protection of public health. Consequently, emissions would not exceed the less stringent secondary standards established for plants and animals. Therefore, staff does not expect any significant adverse air quality impacts on surrounding agricultural land uses (please see the **AIR QUALITY** section of the FSA). Staff is evaluating the effects of the thermal plume on Monterey Bay. At this time, staff does not know if the MLPPP would cause significant adverse impacts to water resources.

Policy 4.3.5.8 states that development within the North County coastal zone shall be consistent with the land uses shown on the plan map and as described in the text of the plan.

The MLPPP consists of a new 1,060 MW combined-cycle power plant within the existing Moss Landing Power Plant site. The project site is designated Heavy Industrial (Coast Dependent) by the North County Land Use Plan. The project is compatible with this designation and consistent with the power generation activities that have occurred at the site since 1950.

Policy 4.3.6.F.1 states that lands designated for heavy industrial use in the North County coastal zone shall be reserved for coastal-dependent industry. New heavy manufacturing or energy related facilities shall be located only in areas designated for these uses in the North County Land Use Plan.

Policy 4.3.6.F.2 states that existing industrial uses outside the designated industrial areas are non-conforming uses under the plan and shall not be permitted to expand. The County's general policy is to encourage these uses to relocate to appropriate industrial areas.

The MLPPP is a modernization of the existing Moss Landing Power Plant, which is classified as "coastal-dependent industry" by the North County Land Use Plan. Like existing Units 6 and 7, the new power generation units also would use seawater for cooling purposes. The MLPPP would be located entirely within the boundaries of the existing power plant site, which is designated Heavy Industrial (Coastal Dependent). Thus, the MLPPP is consistent with Policies 4.3.6.F.1 and 4.3.6.F.2.

Policy 4.3.6.F.4 states that only those industrial uses determined to be compatible with the limited availability of fresh water and the high air quality required by agriculture shall be allowed. New or expanded industrial facilities shall be sited to avoid impacts to agriculture or environmentally sensitive habitats.

The MLPPP would use seawater for cooling purposes, thereby minimizing its reliance on limited fresh water. The MLPPP, which would use natural gas as a fuel, would not cause significant adverse air quality impacts on surrounding agricultural land uses. The project would be located entirely within the existing boundaries of the Moss Landing Power Plant and would not require new offsite linear facilities

(e.g., electrical transmission lines). Therefore, the MLPPP would not conflict with agricultural uses in the vicinity. Duke Energy will redesign the cooling water system to enable the new generation units to utilize the existing intake structure for Units 1-5 in Moss Landing Harbor and the existing discharge structure for Units 6 and 7 located in Monterey Bay, thereby eliminating discharge of cooling water into Elkhorn Slough (Duke Energy 1999a, AFC page 1-2). Thus, staff concludes that the MLPPP would be sited to avoid impacts to agriculture and sensitive habitats.

CHAPTER 5: MOSS LANDING COMMUNITY PLAN

The following policies from section 5.5, Energy Facilities and Industrial Development are applicable to the MLPPP.

Key Policy 5.5.1 reads: "Existing coastal dependent industries in Moss Landing have local, regional, statewide, and in some cases, national significance. Accordingly, the County shall encourage maximum use and efficiency of these facilities, and to allow for their reasonable long-term growth consistent with maintaining the environmental quality and character of the Moss Landing Community and its natural resources."

Policy 5.5.3.1 states that due to sensitive agricultural and environmental resources in the proximity of the Moss Landing Power Plant, which could be damaged by coal conversion, the plant should continue operation with the use of natural gas and oil fuels.

The MLPPP would not use coal. The project consists of two 530 megawatt (MW), natural gas-fired, combined cycle units (Duke Energy 1999a, AFC page 2-10). In addition to the project, Duke Energy will make improvements to existing Units 6 and 7, a pair of natural gas-fired steam boiler units, increasing generating capacity by 30 MW (Duke Energy 1999i, page 1). The new units and upgraded Units 6 and 7 would not use fuel oil as a back-up fuel (Duke Energy 1999a, AFC page 1-6). The 19 oil tanks at the Moss Landing Power Plant will be removed. Staff has found that the MLPPP would not significantly alter the visual character of the Moss Landing Community (please see the **VISUAL RESOURCES** section of the FSA). Operation of the MLPPP is not expected to cause significant adverse air quality impacts to surrounding land uses (please refer to the **AIR QUALITY** section of the FSA). Staff is in the process of developing a mitigation package that would reduce impacts to biological and water resources to an insignificant level. The technical areas of **BIOLOGICAL RESOURCES** and **SOIL AND WATER RESOURCES** will be published as Part 3 of the FSA on June 6, 2000.

CHAPTER 6: PUBLIC ACCESS

In regard to public access to coastal resources, the North County Land Use Plan reads:

"In general, adequate access points to the shoreline exist within the North County area. There is a very real problem with the quality of present access opportunities, however. Few developed access sites or *trails* (emphasis added) are to be found outside of the State beaches [i.e., Zmudowski, Moss Landing, and Salinas River] or

Kirby Park. At many shoreline destinations parking is available only at unpaved pullouts which vary in size and degree of hazard to traffic. Many sites have experienced degradation from unsupervised or excessive use; trampling of vegetation, soil erosion, and litter are the results of unmaintained trails” (Monterey County 1982b, p. 87).

The Plan also states that land use constraints can complicate efforts to provide public access to the shoreline, noting that public access is restricted through the Moss Landing Power Plant property.

Specific policies relevant to public access include:

Policy 6.4.A.1: The County shall require that lateral access easements be provided through private lands in those locations planned for public trails as shown in Figure 6 as a condition to issuance of coastal development permits or other approvals required from the County.

Policy 6.4.A.2: Where specific accessway or trail alignments have not been identified, but where the property in concern is in the immediate vicinity of the trail or accessways shown or proposed in Figure 6, a general offer of dedication will be required. Precise accessway or trail alignments will be agreed upon at a future time through cooperation between the landowner and the public agencies with responsibility for constructing and maintaining the trail.

Figure 6 in the North County Land Use Plan shows a proposed trail running parallel to Highway 1 and passing the Moss Landing Power Plant. The proposed trail would be on the westerly side of Highway 1 (Carney, 2000). The trail would provide a connection between existing coastal trails north and south of the Moss Landing Power Plant that run along Zmudowski State Beach, Moss Landing State Beach, Salinas River State Beach, and Salinas Wildlife Area (Monterey County 1982b). A representative for Monterey County informed staff that it is important to the County to secure an easement for the future trail (Carney, 2000). The goal would be to place the trail as close as possible to the easterly shoreline of Moss Landing Harbor. Toward this objective, Duke Energy agreed at the May 24th workshop on public access to provide Monterey County with a “floating” easement on the westerly side of Highway 1. An offer of dedication would be granted to the County with the understanding that the offer would identify no-entry areas adjacent to the intake structures for the MLPPP and existing Units 6 and 7 to ensure public safety. The precise trail alignment would be agreed to at a future time through cooperation between Duke Energy and the public agencies responsible for funding, constructing, and maintaining the trail. To ensure compliance with the North County Land Use Plan, staff has proposed condition of certification **LAND-3** requiring Duke Energy to provide a general offer of dedication for a public access easement for the proposed trail.

Policy 6.4.H.1: New development shall not encroach on well-established accessways or preclude future provision of access.

The new generation units would be located where fuel oil tanks 3, 4 and 10 are currently located. Existing power plant facilities bound this area on the west, north and east. Figure 6 does not indicate any existing or planned trails in this area. Thus, the MLPPP would not encroach on well-established accessways or preclude future provision of access.

MONTEREY COUNTY COASTAL IMPLEMENTATION PLAN PART 1 (TITLE 20, ZONING ORDINANCE)

CHAPTER 20.28: REGULATIONS FOR HEAVY INDUSTRIAL ZONING DISTRICTS (HI/CZ)

Section 20.28.050: Principal Uses Allowed, Coastal Administrative Permit Required in Each Case (Chapter 20.76) Unless Exempt (Section 20.70.120). This section allows the manufacture of electric power in the HI/CZ District.

The Energy Commission has exclusive authority to certify thermal power plants 50 MW or larger. Because the issuance of a certificate by the Energy Commission is in lieu of any local permit (Pub. Resources Code, § 25500), the MLPPP will not require a Coastal Administrative Permit from Monterey County.

Section 20.28.070: Site Development Standards. The section establishes the following development standards²:

Section 20.28.070.A.1: The maximum structure height is 35 feet unless superseded by a structure height limit noted on the zoning map.

The height limit for the MLPPP site is 35 feet. The four 90-foot tall Heat Recovery Steam Generators (HRSG) and the four 145-foot tall HRSG stacks would exceed the height limit. This section allows additional height provided that a Use Permit, or in this case a Coastal Administrative Permit, is issued. Before a permit can be issued, the County must make findings necessary to support its decision. Pursuant to Section 20.76.050.C, these findings address, but are not limited to, consistency with the Local Coastal Program, site suitability, environmental issues, and public access. In issuing the permit, the County may require conditions deemed necessary to secure the purposes of the coastal zoning ordinance and the Local Coastal Program (Section 20.76.050.D). Because the issuance of a certificate by the Energy Commission is in lieu of any local permit, the MLPPP will not be required to obtain a Coastal Administrative Permit. (An exception to the height limit, which is applicable to the MLPPP, is discussed later.)

The County has indicated that the primary concern with allowing structures to exceed the height limitation would be the potential impact to coastal visual resources (Carney, 2000). Energy Commission staff has assessed the potential visual impacts of the project from eleven “key observation points” (KOPs). These KOPs were selected because they represent view areas most sensitive to the

² The requirements for landscaping (Section 20.28.070.D), exterior lighting (Section 20.28.070.E), and screening of storage areas (Section 20.28.080.A) are addressed in the **VISUAL RESOURCES** section.

project's potential visual impacts, and include recreational areas (Pajaro Dunes, Moss Landing State Beach, Elkhorn Slough Observation Point, Salinas State Beach), residential and commercial areas, and Moss Landing Island. Staff has found that while the MLPPP would be noticeable from many of these KOPs, it would not substantially change the visual character and quality of these views. Furthermore, with mitigation, the MLPPP would not cause a significant adverse impact on the visual resources of the area. These mitigation measures include implementation of: a painting plan to ensure that the MLPPP would not unduly contrast with the surrounding landscape (**VIS-1**); a lighting plan to ensure that project lighting would be adequately designed, shielded, and placed so as to minimize off-site light and glare (**VIS-3**); and a landscaping plan (**VIS-4**). Please refer to the **VISUAL RESOURCES** section of the FSA for a more detailed discussion of the potential visual impacts of the MLPPP and measures proposed to mitigate those impacts.

Section 20.28.070.B: Building site coverage is restricted to a maximum of 50 percent, excluding parking and landscaping.

Section 20.28.070.C: All parking shall be established pursuant to Chapter 20.58. Section 20.58.040 requires manufacturing uses to provide a minimum of one off-street parking space per 500 square feet of net floor area. Staff has proposed a condition of certification (**LAND-4**) requiring the project to provide sufficient parking in conformance with the zoning ordinance.

Section 20.28.070.F: Signing for all development shall be established pursuant to Chapter 20.60. Signs allowed in the Heavy Industrial Zoning District include the following:

Nameplate and street address signs not exceeding in the aggregate 4 square feet and not to exceed six feet in height for the purpose of identifying the subject property. One sign may be allowed for each street frontage (Section 20.60.050.A.1).

Temporary signs for construction projects to identify the project and those associated with the project subject to the following regulations (Section 20.60.050.A.3):

- There shall be no more than 2 such temporary construction signs per project.
- The signs shall not exceed 24 square feet in area.
- The signs shall not be illuminated.
- If attached to the structure, the signs shall not extend above the roof line or parapet wall of the structure. If freestanding, the maximum height shall be 6 feet.
- The signs shall be stationary.
- The signs shall not be located within any road right-of-way.
- The signs shall be removed at the time of final inspection of the project.

Duke Energy has already obtained approval from Monterey County for their new sign for the Moss Landing Power Plant (Carney, 2000). Staff has proposed a condition of certification (**LAND-5**) that requires temporary signs put up during construction must conform to the zoning ordinance.

CHAPTER 20.62: HEIGHT EXCEPTIONS

Section 20.62.030.C: Any structure in an Industrial District may be erected to a greater height than the district allows, provided that the *cubical contents* of the structure shall not be greater than that possible for a structure erected within the height limit, and provided the design, exterior lighting, siting and landscaping plan for the project is approved by the Planning Commission.

Staff contacted the Zoning Administrator for Monterey County, who stated that this is the height exception that the County would apply if they had jurisdiction over the project (Ellis, 2000). The HI (CZ) District limits lot coverage to a maximum of 50 percent of the site, and limits height to 35 feet. For example, a 20,000 square foot lot would be allowed to have 10,000 square feet (sq. ft.) of building area, with structures up to 35 feet in height. The maximum “cubical contents” of the structures would be 350,000-cube ft. (10,000-sq. ft. multiplied by 35 ft. equals 350,000-cube ft.). If the structures covered less surface area, additional height would be allowed, provided that the structures do not exceed the allowable cubical content (in this example, 350,000-cube ft.). Thus, a 20,000-sq. ft. lot, with 5,000-sq. ft. of building area, could have structures up to a maximum height of 70 feet (maximum cubical content [350,000-cube ft.] divided by project area [5,000-sq. ft.] equals project height [70 ft.]).

In the PSA, staff requested Duke Energy to submit evidence to the Energy Commission and Monterey County demonstrating whether the MLPPP would qualify for an exception to the height limit allowing structures up to 145 feet. The applicant docketed the information needed by staff on April 17, 2000. The information shows that the total site area is 10,410,881-sq. ft. (239 acres). The maximum cubical content of the site would be 182,190,411-cube ft. (with maximum site coverage of 50 percent and maximum structure height of 35 feet). Duke Energy estimates that the existing and projected building and structure coverage of the site is 432,463-sq. ft, which includes the new power plant and excludes the 19 fuel oil tanks to be demolished. Based on this information, the maximum allowable project height would be 421 feet (maximum cubical content [182,190,411-cube ft.] divided by project area [432,463-sq. ft.]). The HRSG stacks would be the tallest components of the MLPPP at 145 feet tall and would therefore qualify for the height exception.

MONTEREY COUNTY COASTAL IMPLEMENTATION PLAN, PART 2, REGULATIONS FOR DEVELOPMENT IN THE NORTH COUNTY LAND USE PLAN AREA

LAND USE AND DEVELOPMENT STANDARDS

Section 20.144.140.A.2: All development and use of the land shall conform to the policies of the North County Land Use Plan and to the development standards of this ordinance. (Ref. Policy 4.3.5.9)

Section 20.144.140.B.5.c: Development of new or expanded industrial facilities shall only be permitted where able to meet the following criteria:

1. The industry shall be coastal dependent.
2. The industry shall not use quantities of water that will exceed or adversely impact the safe, long-term yield of the local aquifer.
3. Where not preempted by the exclusive authority of a state or federal agency, the County shall require that the industry contribute only low levels of air and water pollution and reduce project pollution to the lowest levels possible for the particular industry. As a condition of approval, all available and feasible mitigation measures shall be incorporated into project design to minimize the amount of air and/or water pollution.
4. The industrial use shall incorporate appropriate buffer zones where located adjacent to agricultural areas, as per Section 20.144.080.D.6.
5. The development shall meet visual resource, environmentally sensitive habitat, and other development standards of this ordinance. (*Ref. Policy 4.3.5.6 and 4.3.6.F.1 and F.4*)

Like the existing Moss Landing Power Plant, the MLPPP would utilize seawater for cooling purposes. Therefore, the MLPPP is “coastal dependent” (Criteria #1). The use of seawater reduces the MLPPP’s demand on limited fresh water sources (Criteria #2).

Provided emissions offsets can be obtained, the MLPPP is not expected to cause significant adverse impacts to air quality. Staff is evaluating the potential impacts of the thermal discharge on Monterey Bay. Please refer to the **AIR QUALITY** and **SOIL AND WATER RESOURCES** sections of the FSA for a discussion on measures to mitigate adverse impacts to air and water quality (Criteria #3).

The new power plant would be located where fuel oil tanks 3, 4 and 10 are currently located. Existing power plant facilities bound this area on the west, north and east. To the south and across Dolan Road, is the National Refractories industrial site. The MLPPP would not be located adjacent to agricultural areas and, consequently, would not require buffer zones (Criteria #4).

Please refer to the **VISUAL RESOURCES, CULTURAL RESOURCES, BIOLOGICAL RESOURCES** and **SOIL AND WATER RESOURCES** sections of the FSA for discussion on how the MLPPP would conform to the visual resource, environmentally sensitive habitat, and other development standards of this ordinance (Criteria #5).

PUBLIC ACCESS DEVELOPMENT STANDARDS

Section 20.144.150.D.1.c: Development shall be required to provide public access where public access is proposed over the parcel.

The North County Land Use Plan identifies a proposed trail running through Duke Energy's property on the westerly side of Highway 1.

Section 20.144.150.D.2: Where development is required to provide public access, the public access shall be required either as an easement or offer of dedication and made a condition of project approval.

Section 20.144.150.D.3: An easement shall be required when Monterey County will assume responsibility for the improvement and management of the public accessway.

Section 20.144.150.D.4: An offer of dedication shall be required, in lieu of an easement, if the exact location of the public accessway remains to be determined and/or if the County will not be responsible for the accessway's eventual improvement and management.

Section 20.144.150.E.2.a.3: Trail easements shall not be less than 10 feet in width.

The exact trail alignment would be determined at a future time through cooperation between Duke Energy and the public agencies responsible for funding, constructing, and maintaining the trail. Therefore, staff has proposed a condition of certification (**LAND-3**) requiring Duke Energy to make an offer of dedication to Monterey County for a public access easement of not less than 10 feet in width through Duke Energy's ownership on the westerly side of Highway 1.

MOSS LANDING COMMUNITY DEVELOPMENT STANDARDS

Energy Facilities and Industrial Development

Section 20.144.160.C.1.a: Coastal-dependent industrial facilities shall expand within existing sites before off-site expansion shall be considered. (Ref. Policy 5.5.2.1 Moss Landing Community Plan)

The MLPPP would be located entirely within the existing boundaries of the Moss Landing Power Plant.

Section 20.144.160.C.1.c: Future expansion, improvement or other development at the Moss Landing Power Plant shall be considered in accordance with the master plan and associated Environmental Impact Report developed for the facility. Subsequent to County approval of the master plan, permit requests not in conformity with the master plan shall be considered only upon completion and approval of necessary amendments to the master plan. (Ref. Policy 5.5.2.2 Moss Landing Community Plan)

The master plan is essentially a capital improvement program (Carney, 2000). According to the AFC, the current master plan for the Moss Landing Power Plant was reviewed and approved by Monterey County in November 1994 (Duke Energy 1999a, AFC page 6.9-8). Duke Energy has submitted an amended master plan to Monterey County that describes and evaluates the current modernization activities

at the Moss Landing Power Plant. In addition to the MLPPP, these activities include the tank farm demolition and installation of SCR to Units 6 and 7. Monterey County is the lead agency for the CEQA review of the oil tank demolition and SCR. The County will not conduct its own review of the MLPPP, but will rely on the Energy Commission's environmental analysis to make its final decision on the amended master plan. The master plan is tentatively scheduled to be heard by the Monterey County Planning Commission on June 14, 2000 (Carney, 2000).

Section 20.144.160.C.1.d: For on-site modernization and upgrading of existing facilities, the least environmentally damaging alternative shall be selected. When selection of the least environmentally damaging alternative is not possible for technical reasons, adverse environmental effects of the preferred alternative shall be mitigated to the maximum extent. (*Ref. Policy 5.5.2.3 Moss Landing Community Plan*)

The MLPPP would use natural gas as a fuel for power generation. With mitigation, the project is not expected to cause any significant air quality impacts. Please refer to the **AIR QUALITY** section of the FSA. Staff is evaluating the potential impacts to water and biological impacts. As part of that analysis, staff will be evaluating alternative cooling technologies. Staff is in the process of developing a mitigation package that would reduce significant adverse impacts to biological resources and water resources to an insignificant level. The technical areas of **BIOLOGICAL RESOURCES** and **SOIL AND WATER RESOURCES** will be published as Part 3 of the FSA on June 6, 2000.

Section 20.144.160.C.1.e: Modernization and expansion of industrial facilities shall be compatible with existing community land use patterns and circulation system capacities, planning objectives, and local air quality regulations. (*Ref. Policy 5.5.2.4 Moss Landing Community Plan*)

The project site is designated Heavy Industrial (Coast Dependent) by the Moss Landing Community Plan. The MLPPP is consistent with this designation. The MLPPP would be located entirely within the existing boundaries of the Moss Landing Power Plant, consistent with the planning objective of the Moss Landing Community Plan, which prefers onsite expansion of existing coastal-dependent industries to offsite expansion.

Highway 1 and other roadways in the vicinity of the MLPPP are currently operating at unacceptable levels-of-service. Operation of the MLPPP, which would employ approximately 10 new employees, is not expected to significantly impact area roadways. However, construction of the MLPPP would generate a substantial amount of traffic. Please refer to the **TRAFFIC AND TRANSPORTATION** section of the FSA for a discussion of potential impacts and measures proposed to mitigate those impacts. The MLPPP would comply with air quality regulations and would not cause adverse air quality impacts (please see the **AIR QUALITY** section of the FSA).

Section 20.144.160.C.1.f: Potentially hazardous industrial development shall not be located adjacent to developed areas. Potentially hazardous development is

development found to be harmful to the environment or detrimental to the health, safety, peace, morals, comfort and general welfare of the public or detrimental or injurious to property and improvements in the neighborhood or general welfare of the County. (Ref. Policy 5.5.2.5 Moss Landing Community Plan)

The project site is zoned for heavy industrial use. The MLPPP is compatible with the industrial character of the immediate surrounding land uses, which include the 143-acre PG&E substation to the north, the National Refractories magnesia and refractory brick facility to the south, and the commercial fishing industries on Moss Landing Island to the west. Very little residential development exists within one-mile of the project site. Staff has found that the MLPPP would not cause significant adverse effects on nearby land uses (please see the **AIR QUALITY, PUBLIC HEALTH, NOISE, and VISUAL RESOURCES** sections of the FSA). Staff is in the process of developing a mitigation package that would reduce impacts to biological and water resources to an insignificant level. The technical areas of **BIOLOGICAL RESOURCES** and **SOIL AND WATER RESOURCES** will be published as Part 3 of the FSA on June 6, 2000.

Section 20.144.160.C.1.i: Any structural expansion of the Moss Landing Power Plant shall include plans for major access on Dolan Road including any attendant improvements to Dolan Road and or Highway 1. (Ref. Policy 5.5.2.7 Moss Landing Community Plan)

Construction access would occur exclusively through the contractors' gate on Dolan Road (Duke Energy 1999a, AFC 6.9-3). The AFC describes several transportation system improvements that would be made as part of the project: a new permanent right-turn lane from northbound Highway 1 to Dolan Road, a new permanent turning lane south bound from Dolan Road onto Highway 1, and new permanent entrance and departure turning lanes from the contractor's gate onto Dolan Road (Duke Energy 1999a, AFC page 6.11-1). Please refer to the **TRAFFIC AND TRANSPORTATION** section of the FSA.

Section 20.144.160.C.1.k: All new heavy industry must be coastal-dependent. (Ref. Policy 5.5.2.10 Moss Landing Community Plan)

The Moss Landing Community plan classifies the existing Moss Landing Power Plant as a "coastal-dependent" industrial facility. Like the Moss Landing Power Plant, the MLPPP also would use seawater for cooling purposes. Therefore, the MLPPP is "coastal-dependent."

Section 20.144.160.C.1.l: Additional development of environment-polluting heavy industry shall not be permitted. (Ref Policy 5.5.2.11 Moss Landing Community Plan)

The MLPPP would not cause significant adverse air quality impacts. At this time it is not known if the project would cause significant adverse impacts on water quality.

Section 20.144.160.C.2.a: Future upgrading or modification of Moss Landing Power Plant generating units 1-5 will require as part of their development plans to limit the

cooling water discharge outfall into Elkhorn Slough to the historical discharge rate. *(Ref. Policy 5.5.3.1 Moss Landing Community Plan)*

The MLPPP, which would replace retired Units 1-5, would discharge cooling water to Monterey Bay, not Elkhorn Slough.

Section 20.144.160.C.2.c: In the event that conversion of the Moss Landing Power Plant to a coal-burning facility is proposed, an environmental impact report shall be prepared to determine all effective mitigation measures minimizing adverse effects to air quality, public safety, agriculture and aquaculture. *(Ref. Policy 5.5.3.5 Moss Landing Community Plan)*

The MLPPP would use natural gas, not coal as a fuel for power generation.

Section 20.144.160.C.2.e: For industries with significant emissions, as a condition of issuance of development permits, Monterey County shall require that an atmospheric surveillance station be established in the Moss Landing vicinity at the expense of and by the applicant. This station shall thereafter be operated by the Monterey Bay Unified Air Pollution Control District (MBUAPCD) to monitor air pollution concentrations in addition to pertinent meteorological studies. *(Ref. Policy 5.5.3.8 Moss Landing Community Plan)*

Atmospheric surveillance stations were installed and operated between June 1993 and June 1994 in a cooperative effort between the MBUAPCD, National Refractories, and PG&E (Duke Energy 1999). The MBUAPCD is requiring Duke Energy to pay its fare share toward the operation of the stationary source air monitoring station in Salinas. Staff has incorporated this requirement as condition of certification **AQ-46**. Please see the **AIR QUALITY** section of the FSA.

Section 20.144.160.C.2.g: Possible future development of a transmission line north from the Moss Landing Power Plant must be compatible with research and educational use of the estuarine sanctuary. Potential environmental effects shall be reduced to an acceptable level before development is allowed. *(Ref. Policy 5.5.3.10 Moss Landing Community Plan)*

The MLPPP does not propose any new offsite linear facilities (e.g., electrical transmission line).

COMPATIBILITY WITH EXISTING AND PLANNED LAND USES

The MLPPP would be located at the site of the Moss Landing Power Plant, which has been in operation since 1950. The project represents further development of a site committed to industrial use, rather than the introduction of industry in a non-industrial area of Monterey County. The Moss Landing Power Plant site is designated Heavy Industrial (Coast Dependent) by the North County Land Use Plan and the Moss Landing Community Plan. The MLPPP is consistent with this land use designation and would not constitute a change in the current development pattern of the area as established by the Monterey County Local Coastal Program. Furthermore, the project is compatible with the industrial character of the immediate

surrounding land uses, which include the 143-acre PG&E Moss Landing Switchyard, the National Refractories magnesia and refractory brick facility, and commercial fishing industries located on Moss Landing Island.

The construction laydown area for the MLPPP would be located where the West Tank Farm (fuel oil tanks #5 – 9) is currently located, and therefore would not conflict with existing or planned land uses. Construction impacts, such as increased dust, noise, and traffic may affect land uses within the vicinity of the project. With mitigation, noise and traffic impacts would be reduced to an insignificant level (please refer to the **NOISE** and **TRAFFIC AND TRANSPORTATION** sections of the FSA). Staff has proposed all feasible mitigation to control fugitive dust impacts during construction (see condition of certification **AQ-50**). However, these short-term impacts would not be reduced to an insignificant level (please see the **AIR QUALITY** section of the FSA for a detailed discussion). Staff has found that operation of the MLPPP would not cause unmitigated, significant adverse noise, dust, public health hazard or nuisance, traffic, or visual impacts on nearby land uses. Please see the **NOISE, AIR QUALITY, PUBLIC HEALTH, TRAFFIC AND TRANSPORTATION**, and **VISUAL RESOURCES** sections of the FSA.

The MLPPP would not require construction of new offsite linear facilities (electrical transmission lines, natural gas pipelines, water pipelines). Since it would be located entirely within the boundaries of the existing Moss Landing Power Plant, the MLPPP would not disrupt or physically divide an established community, nor convert agricultural land to a non-agricultural use.

The Marine Mammal Center, which currently operates on Duke Energy's property, will be moved from its current location near the cooling water intake structure in Moss Landing Harbor to an existing firehouse building near the East Tank Farm area. This building will provide the Marine Mammal Center with a larger facility in which to conduct their operations. According to the applicant, the Center does not require a location immediately adjacent to the water for its operations (Duke Energy response to questions from the Coastal Commission, October 25, 1999). Based on the positive comments made by representatives of the Marine Mammal Center at the Committee's Informational Hearing, staff concludes that the move will be beneficial to the Center. Therefore, the MLPPP would not preclude or unduly restrict existing uses.

The AFC identifies four residential developments proposed within 2 to 4 ½ miles of the project site (Duke Energy 1999a, AFC pages 6.9-5 – 6.9-6). Of these projects, the Moro Cojo Standard Subdivision has been approved. Another approved project, the Moss Landing Marine Lab, is located on Sandholdt Road approximately one mile west of the project site. The MLPPP would not preclude or unduly restrict these planned projects.

CUMULATIVE IMPACTS

In addition to the MLPPP, other modernization activities occurring at the Moss Landing Power Plant include the phased demolition and removal of the tank farm and the retrofit and upgrade to Units 6 and 7. All of these activities would take

place entirely within the Moss Landing Power Plant site, and therefore would not disrupt or physically divide an established community. Nor would these onsite projects preclude or unduly restrict existing or planned land uses. The net effect of these projects would be the reduction in the overall footprint of the Moss Landing Power Plant, a positive cumulative land-use impact.

The tank farm demolition and upgrades to Units 6 and 7 may occur concurrently with construction of the MLPPP. Cumulative construction impacts, such as increased dust, noise, and traffic may affect nearby land uses. The cumulative, construction noise effects of all these activities are not expected to be significant. Cumulative traffic impacts are not expected to exceed those evaluated for peak construction of the MLPPP. Cumulative dust impacts are anticipated to be significant (please see the **AIR QUALITY** section of the FSA).

With mitigation, operation of the MLPPP is not expected to cause significant adverse noise, dust, public health, traffic, or visual impacts, or contribute substantially to any cumulative, indirect land-use impacts. In terms of noise effects, upgrades to Units 6 and 7 will reduce the noise they currently produce. When combined with the noise produced by the MLPPP, a net decrease in noise is anticipated. Thus, the net cumulative impact to nearby land uses would be beneficial rather than adverse (please see the **NOISE** section of the FSA). This is also the case with cumulative visual impacts of the MLPPP and other modernization activities. The removal of the eight, 225-foot tall stacks, and the eventual phased removal of the fuel storage tanks would considerably reduce the horizontal field of view occupied by the Moss Landing Power Plant (please see the **VISUAL RESOURCES** section of the FSA). Please also refer to the **AIR QUALITY**, **PUBLIC HEALTH**, and **TRAFFIC AND TRANSPORTATION** sections of the FSA.

FACILITY CLOSURE

At some point in the future, the project would cease operation and close down. At that time, it would be necessary to ensure that closure occurs in such a way that public health and safety and the environment are protected from adverse impacts.

The information provided in the AFC did not specifically address the effects of project closure on land use issues and concerns. The planned lifetime of the MLPPP is 30 years (Duke Energy 1999a, AFC page 4-3). At least twelve months prior to the initiation of decommissioning, Duke Energy would prepare a Facility Closure Plan for Energy Commission review and approval. At the time of closure, all applicable LORS would be identified and the closure plan would discuss conformance of decommissioning activities with these LORS.

There are at least two other circumstances under which a facility closure can occur, unexpected temporary closure and unexpected permanent closure. Staff has not identified any LORS from a land use perspective that the applicant would have to comply with in the event of unexpected temporary closure or unexpected permanent closure of the MLPPP.

MITIGATION

Staff's proposed conditions of certification would ensure that the MLPPP would comply with the Warren-Alquist Act, the North County Land Use Plan, and the Coastal Zoning Ordinance. These conditions would mitigate any potential land use impacts to a less than significant level.

CONCLUSION AND RECOMMENDATION

CONCLUSION

The MLPPP would comply with all applicable land use laws, ordinances, regulations and standards. The project is consistent with the current North County General Plan and zoning designation of the site. With mitigation, the MLPPP would be consistent with the goals and policies of the Monterey County General Plan and the Local Coastal Program. In general, the Monterey County Local Coastal Program encourages onsite expansion of existing coastal-dependent industrial facilities, such as the Moss Landing Power Plant, consistent with maintaining the environmental quality and character of the Moss Landing Community and its natural resources. The MLPPP would be consistent with this planning objective.

The MLPPP would be compatible with existing and planned land uses because: 1) the project is compatible with the heavy industrial character of the site; 2) the project is compatible with the industrial character of the immediate surrounding land uses; 3) the project would not disrupt or divide the physical arrangement of an established community; 4) the project would not preclude or unduly restrict existing or planned land uses; and 5) with mitigation, operation of the project would not cause any significant noise, dust, public health, traffic, or visual impacts to nearby land uses. Nor would operation of the MLPPP contribute substantially to any cumulative land use impacts.

RECOMMENDATION

If the Energy Commission certifies the MLPPP, staff recommends that the Commission adopt the following proposed conditions of certification.

CONDITIONS OF CERTIFICATION

LAND-1 To help promote coastal access adjacent to the project site and to satisfy Section 25529 of the Warrant-Alquist Act, the project owner shall:

- (1) Provide Monterey County with a public access easement over a portion of the land lying above the project's outfall structure and to the west of Sandholt Road. The easement shall be in a form and content acceptable to Monterey County. The project owner, in consultation with Monterey County and the California Coastal Commission, shall determine the exact alignment and width of the easement after establishing appropriate buffer

areas to ensure public safety and to allow necessary maintenance activities of the outfall structure, including the surge chambers.

- (2) Provide one hundred thousand dollars (\$100,000) for the purposes of improving coastal access in the vicinity of the project's outfall structure. These funds shall be exclusively used for the planning, design, and construction of "boardwalk" and other trail improvements to provide improved coastal access, including access over the easement provided in paragraph #1 above as well as for improving lateral access along the adjacent beach area in a manner protective of the existing sensitive dune habitat.

Verification: Within ninety (90) days after the start of construction of the project, the project owner shall provide the following:

- A public access easement over a portion of the project's outfall to Monterey County, with a copy of the easement forwarded to the Energy Commission Compliance Project Manager (CPM).
- Deliver a check to the California Energy Commission in the amount of \$100,000 to be placed into a special account for the planning, design, and construction of the boardwalk.

LAND-2 To help promote coastal access adjacent to the project site and to satisfy Public Resources Code Section 25529, the project owner shall:

- (1) Provide sixty thousand dollars (\$60,000) to carry out an environmental assessment of a proposed Elkhorn Slough Circle Trail, specifically to determine how additional visitors can be accommodated in certain areas without compromising adopted resource and species protection objectives for the Slough. The project owner, the Elkhorn Slough Foundation, the California Coastal Commission, and the CPM shall mutually agree on the final scope and principal investigator for this evaluation.
- (2) If the environmental assessment concludes that additional visitors can be accommodated by means of the proposed Elkhorn Slough Circle Trail, or portions thereof, the project owner shall provide an endowment of two hundred and fifty thousand dollars (\$250,000), the proceeds of which will fund 10-12 hours per week of graduate student assistant (or equivalent) observation and maintenance activities along the Elkhorn Slough Circle Trail. At least once a year, the project owner shall meet with the CPM and representatives of the Elkhorn Slough Foundation and the California Coastal Commission to confer about the implementation of this resource protection/coastal access program and to determine if the funds generated by the \$250,000 endowment are sufficient to carry out the agreed-upon hours of service. If the parties mutually agree that the funds generated are not sufficient to pay for the agreed-upon hours of service,

the project owner shall contribute sufficient funds to cover the anticipated shortfall for the year.

- (3) If the environmental assessment concludes that additional visitors cannot be accommodated without compromising adopted resource and species protection objectives for the Slough, the project owner shall meet with the CPM and representatives of the Elkhorn Slough Foundation and the California Coastal Commission to determine a mutually agreeable, alternative coastal access program(s) to receive the \$250,000 endowment.

Verification: Within ninety (90) days after the start of construction of the project, the project owner shall: 1) meet with the CPM and representatives of the Elkhorn Slough Foundation and the California Coastal Commission for the purpose of agreeing on the final scope and principal investigator for the environmental assessment, and 2) shall deliver a check to the California Energy Commission in the amount of \$60,000 for the environmental assessment.

Within sixty (60) days of completion of the environmental assessment, the project owner shall meet with the CPM and representatives of the Elkhorn Slough Foundation and the California Coastal Commission for the purpose of discussing the results of the assessment, and if necessary selecting an alternative coastal access program(s) to receive the \$250,000 endowment.

Within thirty (30) days of the final meeting to discuss either the results of the environmental assessment or to choose an alternative coastal access program to receive the \$250,000 endowment, the project owner shall deliver the \$250,000 endowment to the California Energy Commission. The Energy Commission will transfer the \$250,000 to the appropriate entity that will carry out the purpose of these funds.

LAND-3 The project owner shall provide Monterey County with an offer to dedicate a public access easement of not less than ten (10) feet in width for that portion of the proposed trail identified in the North County Land Use Plan passing through the project owner's property west of Highway 1. The offer shall be in a form and content acceptable to Monterey County. The offer shall identify no-entry areas adjacent to the intake structures for both the project and existing Units 6 & 7 that the project owner determines any future trail must avoid to ensure public safety. Subject to the no-entry areas, the offer shall specify that the precise trail alignment shall be agreed to at a future time through cooperation between the project owner and the public agencies responsible for funding, constructing, maintaining and accepting liability for the trail. To the extent that some, or the entire trail, cannot feasibly be located away from the paved road surface of Highway 1, the public access easement shall be immediately adjacent to the western edge of the existing 80-foot right-of-way for Highway 1 (see also condition of certification **TRANS-11**).

Verification: Within 90 days after the start of construction of the project, the project owner shall provide Monterey County with an offer to dedicate a public

access easement for the proposed trail identified in the North County Land Use Plan, with a copy of the offer forwarded to the CPM.

LAND-4 The project owner shall comply with the parking standards established by the Monterey County Zoning Ordinance (Title 20, Chapter 20.58).

Verification: At least 30 days prior to the start of construction of the project, the project owner shall submit written evidence to the CPM that the project conforms to all applicable parking standards as established by the Monterey County Zoning Ordinance (Title 20, Chapter 20.58). The submittal to the CPM shall include evidence of review by the County.

LAND-5 The project owner shall ensure that any temporary signs used during construction of the project comply with the sign regulations established by the Monterey County Zoning Ordinance (Title 20, Chapter 20.60).

Verification: At least 30 days prior to the start of construction of the project, the project owner shall submit written evidence to the CPM that any temporary signs to be used will conform to the Monterey County Zoning Ordinance (Title 20, Chapter 20.60). The submittal shall include a description of the number and location of all signs. The submittal to the CPM shall also include evidence of review by Monterey County and shall attach and address any recommendations from the County. Within 15 days after the completion of construction, the project owner shall notify the CPM in writing that all temporary signs have been removed.

REFERENCES

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